

JOURNAL BOX

7/75

EDITORIAL.

The various scales and gauges never cease to amaze me. The old 3.5mm and 4.0mm argument for example. Why anyone should want to model 4' 8½" gauge in 4mm to the foot, and then build 18.83mm gauge track to run the models on beats me, when, if they used 3.5mm per foot scale, wheels, axles etc and track is available in 16.5mm gauge (16.48mm represents 4' 8½").

However, like all other things in our hobby, this is the choice of the individual, and my cup of tea is someone else's poison. Similarly, by choice I edit this magazine, and if I choose not to write articles, then I must find something to fill the pages. If all our members choose not to contribute, then the Federal Committee must decide whether or not to continue the magazine.

I believe that it is our magazine which binds the 750 or so members into an Association and if we were to decide not to continue the magazine, we might as well not persevere with the Association.

This is my opinion - what is yours?

Rex Little.

ON THE COVER.

"She'll be comin' roun' the mountain...." A V.R. Garrett flexes her hips on another three chain curve of the slim gauge Colac - Beech Forest line. Artist Lindsay Crow is reliably reported to have tangled his mustachios in the monkey motion when G42 swept past his nose as he made his unusually angled sketch.

Volume 24.

Issue 116

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Credits.

Editor	Rex Little
	P.O. Box 46,
	Nunawading, Vic., 3131
Publisher	Maurie McKinnon,
	26 Bondi Avenue
	Frankston Vic., 3199
Artwork	Bill Morehouse
Cover Design	Heather Gregg
Typing	Dot Treseder
Printing	Sentinel Times Publishing
	8 Radovik St.,
	Korumburra, Vic., 3950
Federal Secretary	Norm Read
	3 Augusta St.,
	Strathfield, N.S.W., 2135
Federal Treasurer	Keith Robinson
	26 Lilac St.,
	Punchbowl, N.S.W., 2196
Federal Registrar	June Dunn
	26 Napoleon St.
	Rosebery, N.S.W., 2108
Advertising Manager	Stuart Westerman
	10 Gardenia Cres.,
	Cheltenham, Vic., 3191

DEADLINE FOR OCT/DEC. JOURNAL IS 6TH
SEPTEMBER 1975.

PRESIDENT'S CORNER



At this time I would like to ask the members to have faith in our Association. I have heard it said by some members, that with only four Journals a year and a rise in annual subscriptions, what are we getting for our money?

Our Editor, Rex Little, has pointed out on a number of occasions, that there is an advisory panel within the framework of the Association which could advise members and be of some assistance to anyone with a modelling problem.

I would also like to point out that everywhere costs have been rising at an alarming rate. Our own Journal costs have risen well over 100% and the subscriptions have only been increased by 50% for Seniors and 33½% for Juniors. Some other organisations have abandoned their publications altogether. Steps are being taken to rectify the situation regarding Journal and as soon as practicable we hope to have it back to its original six copies a year.

Rex has almost used up his supply of articles for Journal. He needs anything from a one page article to one which may run to five pages or longer, in which case he would probably split it over a couple of issues. Would any of you who have the knack with the pen please send along some articles. You might say that certain topics do not appear in Journal - it has been pointed out time and time again that

the Editor can only print what is sent to him and as always it is up to the individual member to contribute.

Plans are under way for our 25th Birthday Celebrations, which will be held in Sydney over the Easter Weekend in 1976. Further details are in this Journal, however, I would ask any member who is interested in attending to please let the Federal Secretary, Norm Read, know as soon as possible so that bookings can be made. As you realise until we have some idea of the numbers, very little can be done to finalise any of the activities planned.

Have you missed your Journal? Perhaps it may be your own fault. Some members write and complain that they have not received their Journal or other mail, yet sometimes they have moved and have not notified anybody at all. Please members, let someone, preferably the Federal Registrar, know of your new address and save some of the lack of communication.

Nomination forms for the Federal Committee of Management will be going out again this year with your accounts so if you feel that you would like to nominate, go ahead, give it a go, fill in the nomination form and send it back to the Federal Secretary. After you read the Editorial in the Jan/March 1975 Journal, I would like to add that what we need on the C.O.M. are workers not just committeemen, so if you are too busy, or not genuinely interested, then please do not nominate.

John Dunn.

IS IT A MODEL RAILWAY?

by E. G. Watson

PART 5 - NON-MODEL OPERATIONS.

We can call in all the experts and have built the largest, most distinguished layout in the world and still be down-graded to toy train players by non-model operations. There are at least 3 ways in which this can be done.

1. Uncoupling and marshalling by hand.
2. Random train running.
3. Random shunting.

On this point I refuse to compromise and see these points as being the dividing line between toy and model.

Specifically:

1. Uncoupling by hand means lifting a scale weight equal to tons weight and can derail trucks. Marshalling is done by engines or tractors, some times horses, but NEVER by some one picking up say a 20 ton truck and carrying by hand to another siding. This is the objection to many layouts illustrated - there are insufficient sidings for the work to be carried out. In fact some such designs REQUIRE that trucks be lifted off the track by hand.

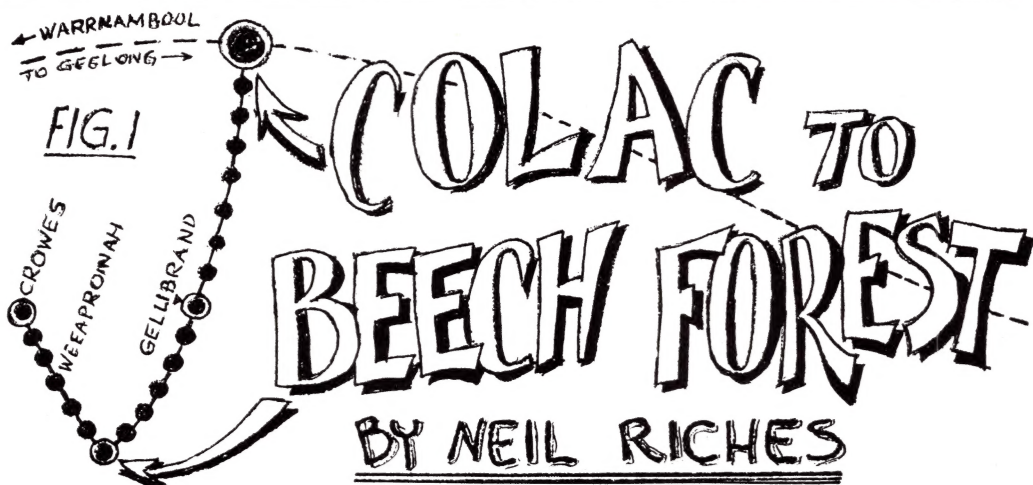
When it comes to a manufacturer presenting a design on which his uncoupling ramps will not fit the ridiculousness of the situation is clearly seen. Unless we learn to couple and uncouple using an engine plus ramps, learn to pick up and set down trucks (Journal 94) and marshall them we cannot even start getting out of the "toy train" class.

2. Sufficient to say here trains are timetabled; even if they do not always run on time. Their routes, stopping places, refreshment stops etc are all listed.

The one-station layout defies logic. I can't think of any reason why I would want to get on a train at Clayton, run around in a circle, and get off again. This could be some sort of scenic railway, but at least let it be called that. This reminds me of a humorous situation. I had been moving around a bit from station to station, so when a chap came up to the booking window and asked for a Huntingdale return I spent a couple of minutes searching the ticket cabinet for one before I woke up I was at Huntingdale. My customer did not want to ride round in a circle - he wanted to get to South Yarra and so to his job.

3. Trucks are consigned from one station to another. We don't just drop 6 trucks off somewhere because we feel like it - also we consign the correct truck type. If Jones has a wood yard in the sidings he doesn't want a milk truck. All these points are dealt with more fully in the next section.

If we want to operate a model railway we must operate it like the original. If you don't, I can assure you that you haven't even started in on the hobby so far as getting the fullest enjoyment from it. As stated in the earlier articles some hours of practice are needed, but it's well worth while.



Reprint from A.M.R.A. Journal No. 24
May 1957.

Having promised the fellow with the blue pencil that I would write an article on this, the most fascinating of the V.R. narrow gauge lines, I suppose I had better justify some of the elaborate claims I made for it to him. For the Colac - Beech Forest line is, with a few minor reservations and alterations an ideal prototype for an interesting, effective, and very "different" model railway. First, however, I should like to make two preambles. If, in my descriptions, I appear to use too many superlatives, rest assured they are fully justified. To borrow an expression from the extremely distasteful "rock 'n roll" fraternity, the Beech Forest line is "positively the most!".

The other, in more serious mood, is this. I feel very strongly that any article dealing with prototype practices or situations, and published for readers who are model railway enthusiasts - and presumably builders - should be written from a model maker's point of view. In other words, the article should endeavour to show how this or that feature of the prototype can be reproduced in model form. But first we'll take a brief look at the history of the line under discussion.

The narrow gauge railway from Colac via Beech Forest to Crowes was completed in 1902, and the section from Weeaprounah to Crowes was closed on the 9th January, 1955. In its heyday it was a very busy line, annually hauling many thousands of passengers and fabulous tonnages of freight of all descriptions. Further details on the whys and wherefores of its construction, and which particular Act of Parliament authorised its construction, would be supplied willingly, I am sure, by the Australian Railway Historical Society. That Society, in its own field, does an excellent job, but readers of the AMRA Journal are primarily model makers and not historians - so at this point let's leave the history to the historians.

The northern terminus of the line and its connection with the main south west trunk line of the V.R. is at Colac, a progressive small city of some 9000 or 10,000 inhabitants located in the centre of one of Australia's richest dairying areas. The broad and narrow gauge track layout at Colac is sprawling and would be difficult to adequately reproduce in model form on account of its size.

As I hope to show, there is another prototype layout in Victoria much better suited for a model narrow gauge connect-

ion. So I shall briefly record that the narrow gauge tracks radiate in a sort of untidy fan alongside the broad gauge yard, which boasts a transfer goods shed with broad and narrow gauge stub ended tracks on either side of the platform. The yard also contains an end loading ramp for transfer of narrow gauge stock to broad gauge flat trucks for transport to Newport shops, and an engine spur and coal stage, but no narrow gauge turntable, although a single track engine shed is provided. Before we pass into the narrow gauge territory proper, note that the above are all facilities we must have in a model at the broad gauge end of our narrow gauge empire.

Leaving the main line at Colac and bearing easterly, the Crowes line soon traverses a 90 degree curve. Mark this, for model railway rooms often have corners where the walls meet at 90 degrees! The radius of this curve is relatively easy, so this is one of the few on the line where the wheel flanges don't squeal. Shortly after leaving the yard limit the line passes a standard V.R. somersault Home signal. We shall need at least three or four of these for our layout, and I for one would be eternally grateful if one of the technical experts on the large and well paid "Journal" staff would produce an article on how to make one of these signals in $\frac{1}{4}$ " scale.

At the end of the curve the line proceeds due south and fairly level for a couple of miles, yet even on this preliminary stretch locos occasionally slip. Why? Well, wandering cows are prone to deposit semi-liquid "calling cards" on a running rail along here, - but apart from this minor nuisance, engines can use this easy section to build up ahead of steam (and courage) for the tasks ahead.

Just past the township of Elliminyt the line abruptly plunges into the foot hills of the Otway Ranges, and here commences the series of 90 degree - and often more - reverse curves of minimum radius. These curves are fre-

quently on a maximum gradient and continue with very little relief for the rest of the journey. Between Gellibrand and Beech Forest there are 136 curves, 96 of them being check railed. In this same stretch of eleven miles route distance the line climbs 1575 feet and the maximum grade is 1-30, with the minimum radius of curves held at three chains.

As a point of interest, this equals 50" in $\frac{1}{4}$ " scale and 5/8" gauge, (or 16.5mm gauge as is commonly used in modelling 2'6" gauge in $\frac{1}{4}$ " scale). Yet 4mm and 3.5mm scale models of standard gauge trains frequently traverse 15" and 18" radius curves on the same gauge (16.5mm) at scale speeds of 200-250 mph. Oh! to be a railway modeller!

But back to our railway. Before plunging down to Barongarook the line passes close to a brick works, the principals of which ignore the proximity of the railway and transport all their products by road. However, it goes without saying that the directors of the brick works on our proposed model will be much more reasonable in this regard - by having their own private siding. These actual brick works are ideal for a model project as the whole of the buildings are squeezed into a narrow space between the railway and the main road on a curve. There is no quarry hole, instead at one end there is a heap of clay which I believe is brought to the site by road transport.

From here on the going gets progressively tougher. The big timber commences and the railway passes in the vicinity of several mills, the majority of which inconsiderately use road transport for their logs and lumber. The recent closing down of one of the few mills which used the railway deprived the line of yet another of its sources of revenue, and made louder the official voices which presently threaten its closure. However, more on this later.

The deeper the line plunges into the Otways, the more tortuous the route becomes. And the higher the line climbs,

the denser becomes the timber until finally the right of way is literally carved out of the jungle. Yes Queenslanders, I said Jungle! The temperate rain forests of the Otway peninsula surpasses in denseness anything your fair state has in that line. It is a simple fact that the trees are bigger, for they are long lived hardwoods and they grow close together. The undergrowth is just as thick and individual plants are, if anything, more robust.

At this stage I think we could well digress for a few paragraphs to describe the general terrain. The peaks of the mountains are all of much the same height, but separated by deep gullies. The sides of these gullies progressively steepen the nearer they approach the level of the inevitable creek or river in the bottom of each gully. The peaks are connected by high ridges with steep and often precipitous slopes, and the whole area is a jumbled twisted phantasy of mountains as though some land making giant had gone berserk, and then roughly smoothed the tops of his piles of spoil with a swipe of his hand.

No matter down which side of the gullies and ridges the rain water cascades, the creeks and rivers all boil south to Bass Strait. And over all this is the blanket of the forest, densest on the southern and western slopes, with cleared areas, sometimes cultivated, in the more sheltered aspects. Where land has been cleared, the steeper slopes are terraced by the tracks of sheep and cattle. From a distance all this appears to be a mass of smooth high ground, but penetrate into the area and you must agree that only one word described this scenery - magnificent.

And penetrate the area the railway does. In the whole of Australia I know of only one place where a railway line is more spectacular - the Barron Gorge line in North Queensland. Yet how simply did the surveyors and engineers of the V.R. achieve their goal

in this area. The line is truly a classic example of engineering skill, for it emerges triumphantly from this wilderness at Beech Forest, having only negotiated one river crossing - a thirty foot high timber trestle viaduct over the Gellibrand River at Gellibrand.

There is not a single tunnel, and very few cuttings and embankments, although there are, of course, various small trestles and culverts over creeks and dry washes - and two road overpasses on the line. In general, construction costs were kept to a minimum by the exercise of engineering know-how of the highest order.

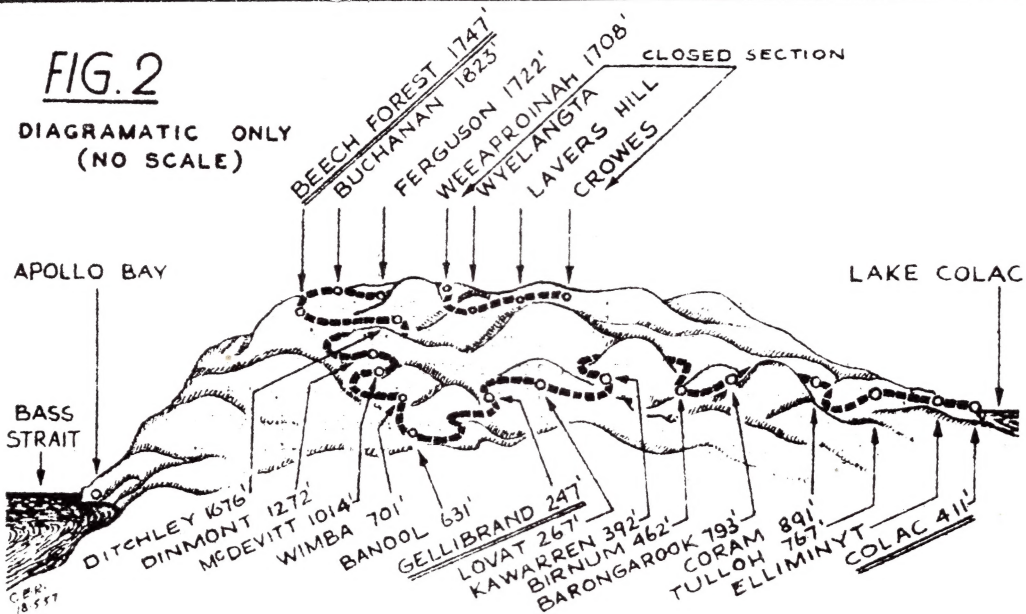
The line does not pass through, under, or over the ridges and gullies it goes round them by a series of almost hair raising short tangents and minimum radius curves, several times following an ever rising contour through a full 180 degrees of curvature. Think of the length of mainline we can twine into our model railway room, and with perfect justification. To give some idea of what I have just been describing, Fig. 2 gives an idealised sectional view of the Otway Peninsula for those unfamiliar with the area.

After surmounting the first rampart of the mountain barrier the line descends into the wide and beautiful valley of the Gellibrand River and the train can take a brief rest at the little township of Gellibrand, 17½ route miles from Colac. Here there is another home signal and a level crossing and a simple four track double ended yard. There are two weatherboard railway houses for Way and Works Branch and station employees, and a ridiculously small station building or goods shed. The building, with its verandah, is 18' x 10', and although this is one of the major stations on the line there is no station platform and the building is of galvanised iron.

It is some time since I visited the place, but I seem to remember that somewhere in the yard is a small galvanised iron water tower. I may be wrong in

FIG. 2

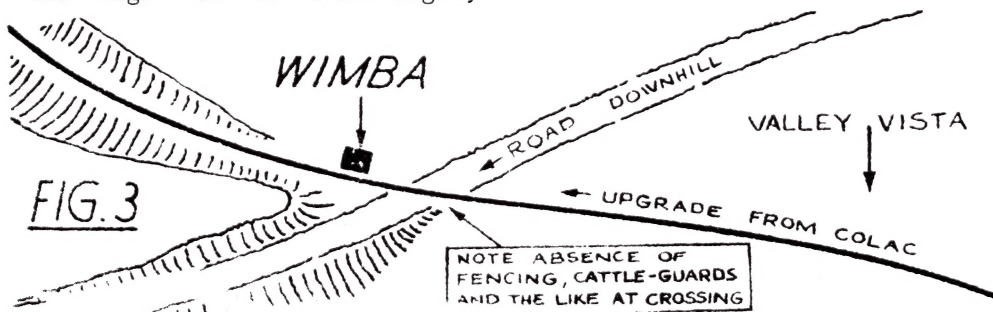
DIAGRAMATIC ONLY
(NO SCALE)



this, but at any rate I feel one would be justified on our model. At one time there were refreshment rooms at Gellibrand, and a commodious office for the stationmaster. Now only the goods shed and a small lamp room remain of past glories.

And so back to the grind of flanges as the battle recommences, and in the fullness of time we pass Wimba. This, I think, must surely be the smallest and simplest railway station (yes! I will say it) in the world. The line comes out of the forest onto the top of a ridge for a brief spell of fresh air and almost immediately lunges into a cutting and yet another minimum radius curve. In between - that's Wimba! The main road comes down a steep hill from the right at an acute angle,

crosses the line at a level crossing, and disappears round the brow of the ridge. Right at the crossing is a 9' x 6' galvanised iron shed, open on the track side, and embellished with a typical V.R. station name board. Big white raised lettering on a black board proudly announces Wimba. The only other decoration is an equally familiar sign advertising a nationally famous firm of skin and wool dealers. A stopping passenger train must have had to stand and foul the main road! Did I hear howls of dismay from those sticklers for prototype accuracy? We really must incorporate Wimba into our model railway - a whole station layout occupying a space of $2\frac{1}{4}" \times 1\frac{1}{2}"$ in $\frac{1}{4}"$ scale. (See Fig3.)

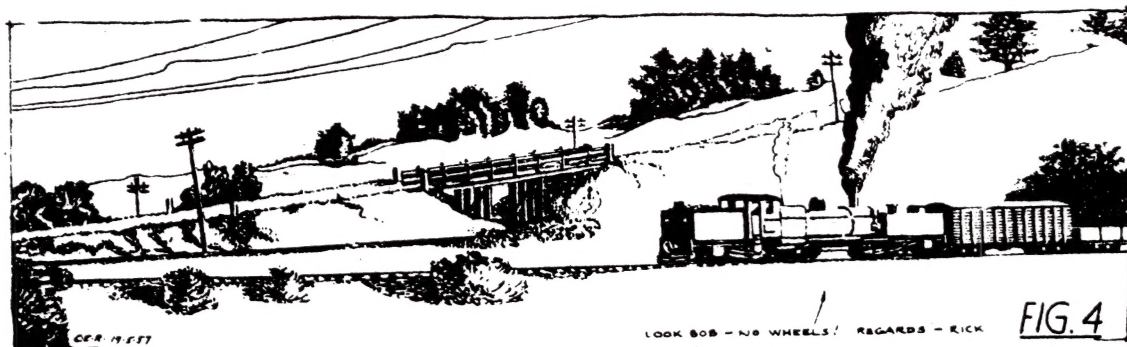


And now for that railway modellers pearl without price - Beech Forest, for here is a prototype station layout which is an absolute gift for a model rail-roader. With an almost audible sigh of sheer mechanical relief, the train comes into the open air again as it approaches the township, and skirting round a fairly easy curve to the left, near the top of yet another ridge, passes what appears to be a branch line. This bears in at an acute angle from the right shoulder of the ridge, and just before this supposed branch approaches the main line it ducks under a road which comes down the spine of the ridge on an almost absurdly steep grade. (See Fig.4)

road, which is the main line to Crowes (See Fig.5). Yes. I said reversing loop - you ivory tower prototype fidelity gentlemen!

And the V.R. doesn't even resort to the subterfuge of concealing it in a tunnel, albeit modesty is preserved by coyly draping a shallow cutting round the loop. In the centre of the loop are the local tennis courts.

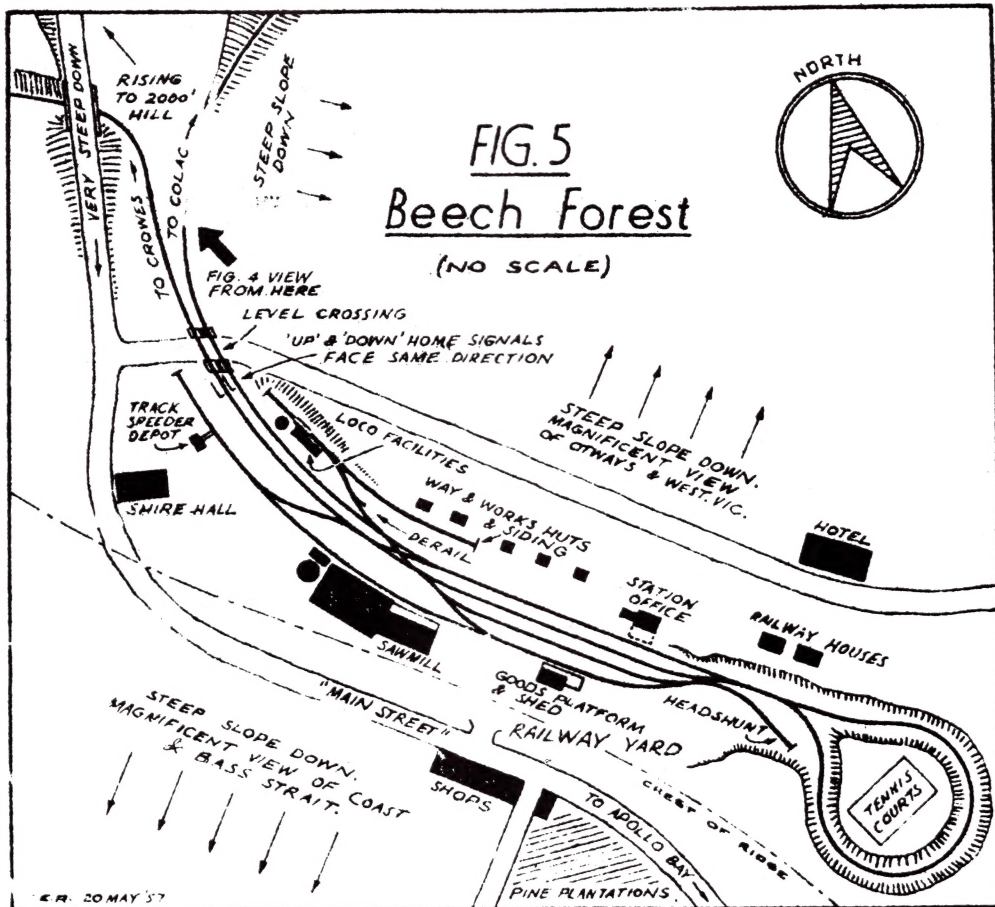
The station at Beech Forest is typical V.R. railway architecture, although there is no actual platform. At one side of the yard is a timber mill served by a siding which, heaven be praised, is in use! There is a small goods shed and a loco siding. This



The two tracks run parallel through a level crossing and then we are confronted by something passing strange indeed. Two separate posts, each with a V.R. somersault home signal, stand side by side, presiding over the two lines. They are, in fact, the Up and Down home signals for Beech Forest, yet they both face the same way. You see, our "branch line" is really the continuation of the main to Crowes, beyond Beech Forest, but the curvature round the brow of the ridge was just too tight even for narrow gauge. So a train from Colac proceeds ahead into No. 1 road at Beech Forest station, passes round a REVERSING LOOP and can either return to Colac, or into No.2

latter has an ash pit, coaling stage and water tower. The town itself, at an elevation of 1775' above sea level, is picturesque and not too large to model in its entirety, and the scenery breath-taking beautiful.

From Beech Forest the line proceeds along the other side of the ridge and after passing one or two minor stations with double ended yards, reaches its present upper terminus at Weeaprounah, six miles from Beech Forest. Here there is a double ended four track yard similar to that at Gellibrand, and a sawmill, which the railway serves. Locos use a short stretch of the old main line beyond the yard limit as a "stub end" for run round purposes, al-



though beyond this point the line on to the original terminus at Crowes has been abandoned and is rapidly being reclaimed by the jungle. The highest point on the line is at Ferguson at 1850' shortly before reaching Weeaprounah.

Rolling stock used on the line is identical with that on all other V.R. narrow gauge roads. Brief descriptions of these vehicles have appeared in Parts 1, 2 and 3 of this series. At the present time trains are composed almost exclusively of class NQ gondolas, and the number of louver vans has been reduced to three, the cattle trucks having been withdrawn altogether. It is several years since passenger trains were run, and the few

passengers now offering are accommodated in the guard's van. These vans are equipped with intriguing side windows labelled "Tickets", as mentioned by the author of the previous articles in the series.

For some time, until January 1957, only one run a week was made: Colac - Beech Forest - Weeaprounah, on Wednesday morning, returning to Colac the same afternoon. In February, 1957, increased traffic in 6' logs for paper pulp from Ferguson and Weeaprounah mills warranted an extension of the service, so an extra run per week is now usually made on Fridays. While there's life there's hope, but the bitter fact remains that the principal factor responsible for keeping the railway open

is, of all things, the Country Roads Board.

The Board has imposed a six ton load limit for vehicles on the main road from Gellibrand to Beech Forest, which drastically limits the timber traffic the road can carry. This road is now being progressively rebuilt and relocated so the railway's days still appear to be numbered.

Both the V.R. 'G' class Beyer-Garretts are now stationed at Colac and have been working month and month about. At present, G41 is out of service because of mechanical trouble and G42 is handling all the traffic. I was in Colac during the week ending 15/2/57 and noticed that two of the NA class 2-6-2 tanks Nos. 5A and 14A were in very cold storage at the end of the engine spur in Colac yard, but both appear to be in excellent condition. I believe 14A has spent almost its entire life on this line.

Engines always run smoke box end first on the climb from Colac, and bunker first on the return run. The tractive effort of the Garrets is approximately 26,000 lbs., the same as a V.R. A2 class 4-6-0 on the broad gauge. But the maximum tonnage permitted from Colac to Gellibrand is 240 tons and from Gellibrand to Beech Forest 180 tons. As the tare weight of each vehicle is 3 tons and the load limit 12 tons, trains of fourteen vehicles, including empties and the van, are about the limit. This gives some further idea of the severity of the route. Maximum permissible speed is 20 mph., with a further restriction to 10 mph. on curves.

The traffic on the line down is typical of most rural branches. Large quantities of potatoes down from Beech Forest - Ferguson - Weeaprounah in season. Large quantities of superphosphate up in the season, timber and logs all year round, with the occasional addition of agricultural machinery, and 44 gallon drums of petrol and oil and the everyday requirements of the communities along the route. At present

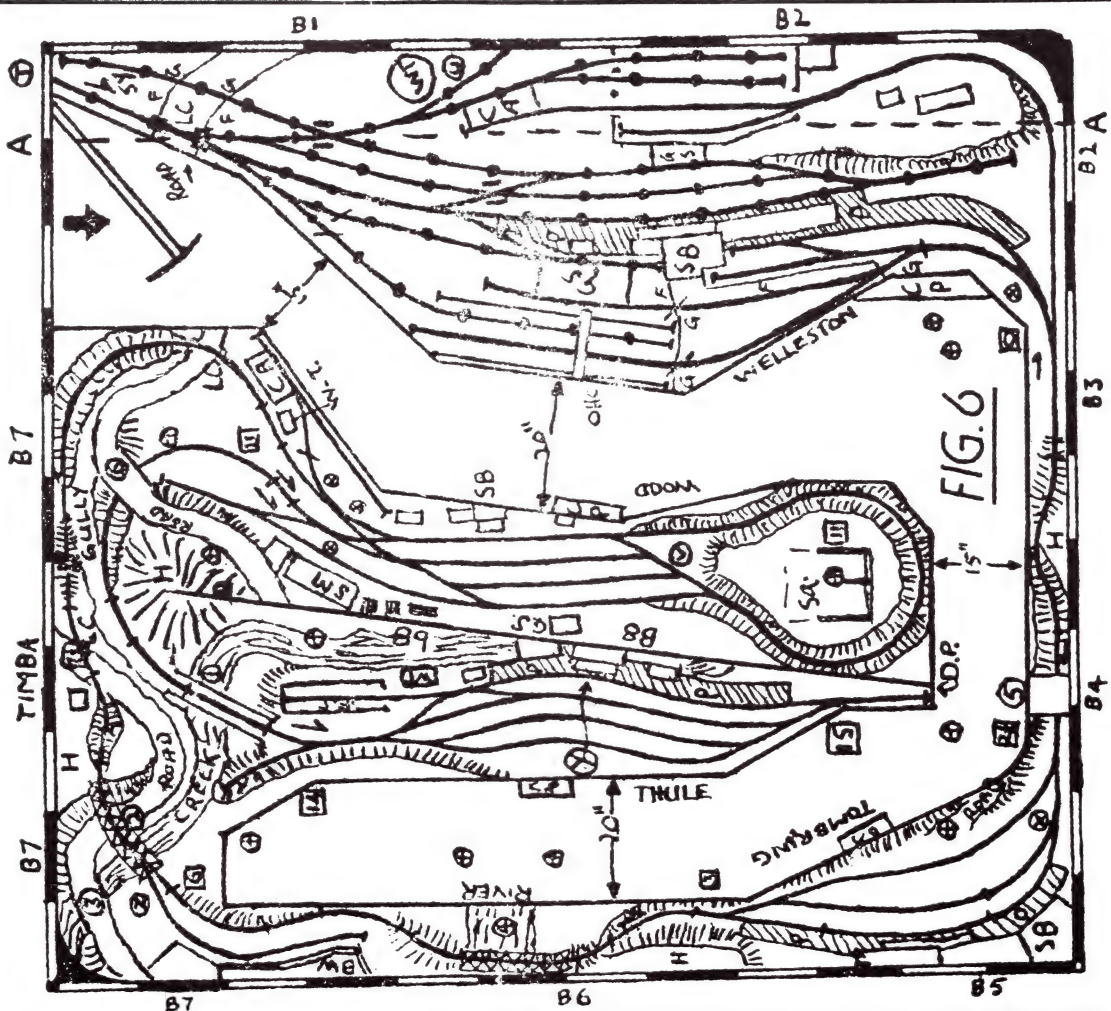
some sixty vehicles are in operation, usually twenty of them standing in Colac yard, twenty in Beech Forest yard, and the remainder either in a train or scattered in yards and sidings along the line. For much of the technical information in the foregoing notes I am indebted to Mr. A. Denning, Acting Head Ganger at Gellibrand.






In the concluding portion of this article I would like to tie this article and the contents of parts 1, 2 and 3 together by presenting a model layout plan. This is based primarily on the Beech Forest line, but incorporates features of several of the other narrow gauge lines, thus being typical of V.R. narrow gauge operations as a whole.

The Walhalla line has not yet been dealt with in this series, although a brief but excellent article in the January 1957 issue of the V.R. Newsletter covers some features, and includes some very good photographs of this now defunct line. In broad terms it was very similar to the Beech Forest line, but the station layout at the upper terminus at Walhalla was a gem. The actual station building at Walhalla would make a fine model, and Victorians can still conveniently inspect it, for it was moved to Hartwell on the Melbourne electrified suburban system where it can be measured and photographed.

Features which I think we should attempt to incorporate in our model narrow gauge layout are the 90 degree curve on flat level grassland outside Colac, the brickworks between Elliminyt and Barongarook, the trestle bridge over the Gellibrand River, Wimba and Beech Forest as a whole. On the Ferntree Gully - Gembrook line we could use Belgrave and Upwey stations with their platforms and imposing road overbridges the curved trestle and road underpass (so beloved of tourists and photographers) between Belgrave and Selby, and finally Walhalla station buildings and yard layout as a whole (from the Moe - Walhalla line). So here it is (Fig.6).

You will notice I have subtly



 CUTTING
 EMBANKMENT
 HOME SIGNAL
 DERAIL OR CATCH POINT
 TANGENCY POINT
 B.W. BRICKWORKS
 C.A. COAL STAGE & ASH PIT
 C.P. CONTROL PANEL
 D.P. DIVIDING PANEL FOR BACKGROUND AT LEAST 6'6" ABOVE FLOOR LEVEL
 H. HILL E.S. ENGINE SHED
 G. GATE F. FENCE
 G.S. GOODS SHED
 L.C. LEVEL CROSSING
 O.H.C. OVERHEAD TRAVELLING CRANE
 P. PASSENGER PLATFORM
 S.B. STATION BUILDING
 S.M. SAW MILL
 S.Q. SQUASH COURTS
 W.T. WATER TOWER
 BROAD ARROW SIGNIFIES ENTRANCE DOOR



BRIDGES

- ① PLATE GIRDER WITH CONCRETE PIERS
- ② TIMBER TRESTLE
- ③ CONCRETE ROAD BRIDGE
- ④ TIMBER TRESTLE
- ⑤ HIGH BRICK OVERBRIDGE
- ⑥ AS PER FIG. 4

BACKGROUNDS

- B1 OPEN COUNTRY
- B2 COUNTRY TOWN
- B3 OPEN COUNTRY WITH FARM
- B4 HIGHWAY DISAPPEARS BEHIND TOWN
- B5 COUNTRY TOWN
- B6 RIVER DISAPPEARS INTO TIMBERED MOUNTAINS
- B7 HIGH TIMBERED MOUNTAINS
- B8 VIEW OVER TIMBERED MOUNTAINS TO DISTANT SEA
- B9 STEEP TIMBERED HILLSIDE WITH GOLD WORKINGS

MARGIN DIVIDED INTO FEET

 BROAD GAUGE (5'3")
 NARROW GAUGE (2'6")
 MIN. SPACING ON PASSING TRACKS N/G. 3 3/4" } CENTRES
 B/G. 4 1/4" }
 MIN. RADIUS N/G 15" EXCEPT RETURN LOOP AT OAKWOOD 15" IF MORE SPACE AVAILABLE THAN 10'x12' LAYOUT CAN BE EXTENDED BEYOND DOTTED LINE A-A.

ELEV. IN INCHES THUS ③
 CENTRES IMPORTANT CURVES ④
 WRENN CURVED POINT ⑤
 WRENN TRACK & POINTS USED THROUGHOUT FOR N/G SECTION

On 2 1/2 LAYOUT

SCALE 1/4" = 1'0". GAUGE 16-5MM.
 DRAWING BY NEIL R. RICHES
 2ND JUNE 1957

altered station names so as not to tie our line to any particular locality. Healesville, the prototype chosen for our broad gauge connection becomes Welleston, Belgrave becomes Tombring Beech Forest becomes Oakwood, Walhalla becomes Thule and Wimba becomes Timba. This latter is, I think, very appropriate. Did I hear raucous voices protesting that no narrow gauge line takes off from Healesville? I know that, but I assume you may also want to model a V.R. broad gauge line as well, and that you are sufficiently ambitious to run the two layouts together - the narrow gauge acting as a feeder to the broad gauge.

My own ideal would be to have the narrow gauge layout indoors for inclement weather operation, and the broad gauge (0 gauge) layout outdoors, where space is not such a vital consideration and the scenery is ready made. But to get back to Healesville I declare bluntly that there is no V.R. broad gauge prototype station in existence more suitable for the terminus than Healesville. It has everything - a gracefully curving broad gauge platform, a timber siding with overhead travelling gantry crane, a stock yard and stock pens, an engine shed and turntable, and even a tunnel mouth for the track to disappear into. There is a level crossing with cattle pits, two double slip switches, only one signal to model, and we could comfortably compress the lot into a triangular space of about 10' x 5' in 0 gauge.

True, it never had a narrow gauge connection, but the country it serves is typical narrow gauge terrain, and if the excellent motor road through the area had not been built, a slim gauge line could have been and would indeed most likely would have been constructed. And how perfectly and how simply Healesville can be adapted for a narrow gauge connection, as you can see! The layout is much less clumsy, I feel than those at Colac or Ferntree Gully or Moe. The dual gauge track by the coaling stage is similar to the set-up

at Wangaratta in the Wangaratta-Whitfield narrow gauge/broad gauge terminus.

The plan is drawn for a 12' x 10' space in $\frac{1}{4}$ " scale, and I would use "Wrenn" flexible track - its oversize sleepers, and sleeper spacing are just about right for narrow gauge track in $\frac{1}{4}$ " scale. I think I would investigate the possibility of utilizing the excellent kits of the Rivarossi O-6-0 tank. In $\frac{1}{4}$ " scale I have an idea the wheel diameters and spacings would be near enough to right, and although most of the body castings would have to be scrapped, some of the bits and pieces might be useable. The kits are available commercially (in Victoria at least) for round the £ mark, and most importantly, they DON'T come with the Walschaert valve gear, which is an extra. Thus that beautiful piece of work wouldn't have to be scrapped. Your worry would be to adapt the mechanism for outside frames, with the side rods etc. outside. For the Garretts, two of the Triang 2-6-2 tank loco mechanisms placed "back to Back" would serve. Three locos should be ample for the layout, two NA class tanks, and one Garrett for the freight work. And that's that! Thank you, Mr. Richardson, sir. You take it from here!

And thank you, Neil, for this imaginatively written picture of Victoria's last genuinely operating narrow gauge line.

It is quite true, as Neil says, that Walhalla Station building can now be seen at Hartwell, a scant mile from where I write this. But intending modellers, or even those interested only in "peering into the past", should bear in mind that at Walhalla the building was "one sided", for it crowded against a rocky mountainside. In its present location it is situated on an island platform, and is now "double-faced". During re-erection, various additions and modifications were made, and none but the well informed could

now tell that the structure has ever been any different than its existing form.

On a recent rail trip over the entire Colac - Weeaprounah line, Journal staff members noted the following "variations" from statements in the above article. There is no sawmill at Weeaprounah, only a lonely siding and ground loading point. The actual mill is located some distance from the line, out of sight (and sound) of the siding, for we were there on a normal working day and watched motor truck loads of pulpwood being trans-shipped to the railway.

As far as train loads are concerned, our outbound "Down" to Beech Forest (very much "Up" in actuality, as Neil has pointed out) consisted of 14 empty NQ class gondolas, 2 loaded NQ gons, a loaded U class louvre van and "our" NC van. On the return "Up" run to Colac the train was made up of 14 gons. loaded high with 6' pulpwood, one gon. of sawn building timber, an empty louvre and the van. This was the load limit, for we brought 16 loads of pulpwood from Weeaprounah, and cut off two at Beech Forest to add the load of sawn timber and the empty louvre at the latter

station. Even so, there were at least another 8 loads of pulpwood waiting at Beech Forest for removal to Colac.

Our guard, who was also a Travelling Station Master, told us that present stock on the line is now about 75 cars, and even these are being used to capacity. A fine old argument developed over this at Beech Forest, where the Station Mistress wanted 12 empties and the T.S.M. could only supply 6. The statement Neil makes regarding loco direction of travel is "half right". Due to the balloon loop at Beech Forest, a loco may or may not be "reversed" by the time it returns from a run to that station. It all depends on whether the loco traverses the loop or not.

Further points of interest are that Beech Forest yard contains the only scissors crossover on V.R. 2'6" gauge. And this crossover is set on a curve, just to confound the amateur "experts". The loco ash pit at this station is most unusual, for the ground falls away so steeply that one side of the pit is sunk in the ground in the usual way, while the other side is quite open the track being supported on trestling on one side only.

Editor.

A.M.R.A. "T" SHIRTS.

The Nepean Sub-branch have arranged to have "T" shirts printed with the A.M.R.A. wheel emblem, and the words Australian Model Railway Association, on the front. The shirts are a good quality nile, made in Australia, and are available in either white at \$3.50 each or gold at \$3.95 each. This includes packing and postage. Order yours now by writing to:

M. Guest, Hon. Sec.
Nepean Sub-branch, A.M.R.A.
31 Birch Street,
St. Marys, 2760.

Please state size, colour and number required. Include payment with order making cheque or money order payable to Nepean Sub-branch, A.M.R.A.

Mike Guest.
Hon. Sec.

Mr. Rex Little

wishes to express his sincere appreciation
of your kind thoughts and sympathy
in his recent sad bereavement.

P.O. Box 46,
Nunawading, 3131.

CODINGS OF VICTORIAN RAILWAYS WAGONS.

By Geoff Brown.

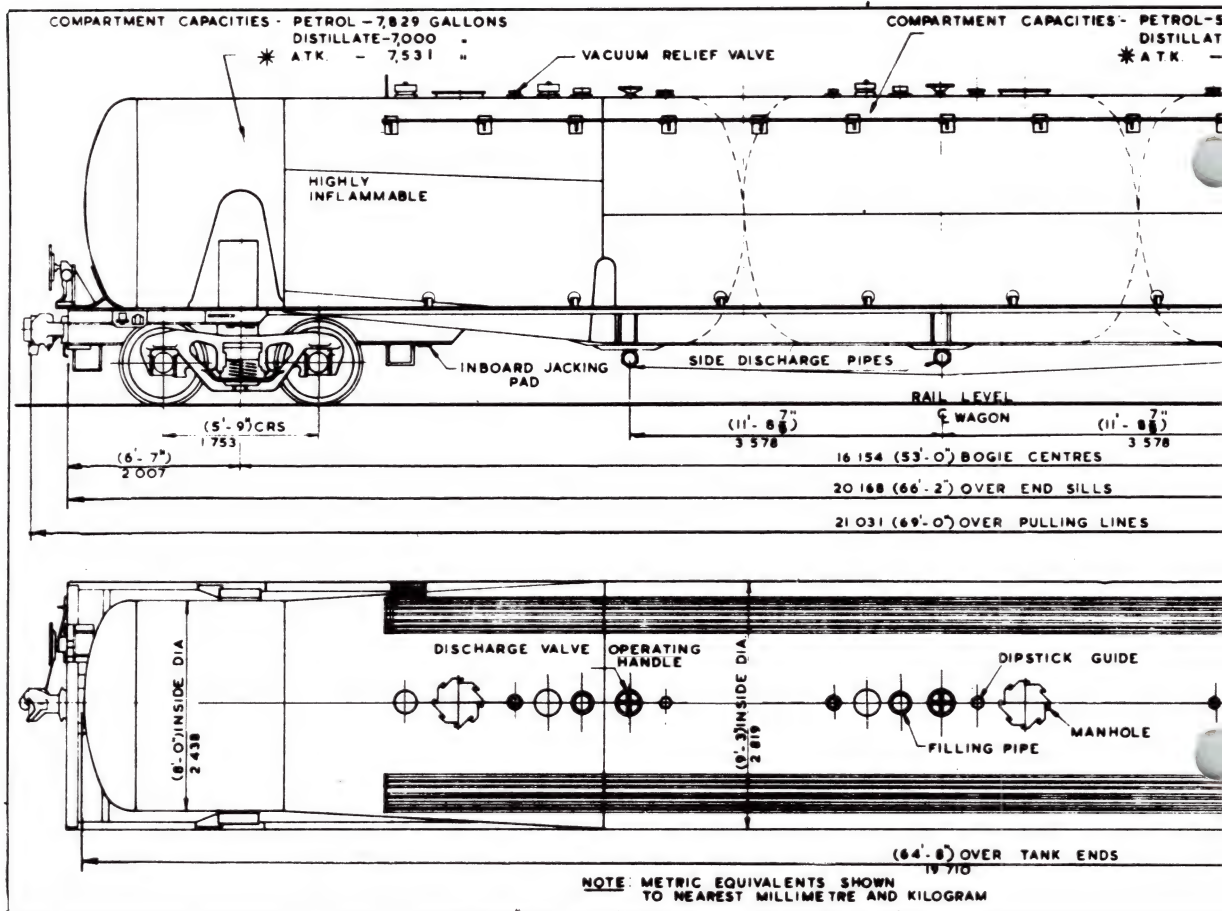
Following up the suggestion in the Secretary's Desk last year, here is a list of the codings of Victorian Railways wagons which were on the register in September, 1974.

Perhaps at a later date this list can be expanded to give the leading dimensions of each vehicle.

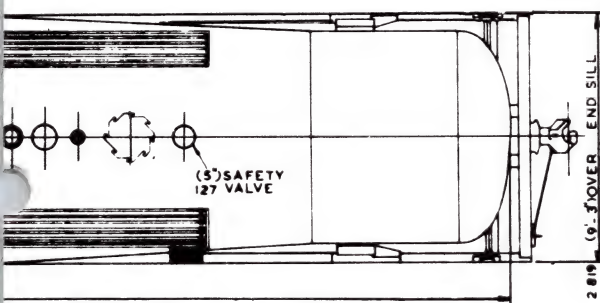
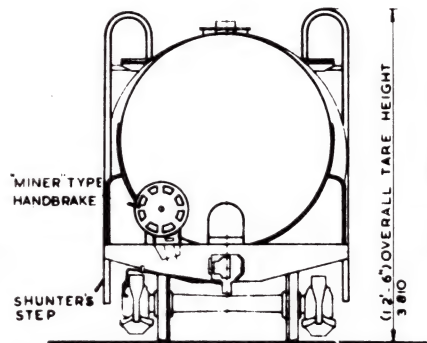
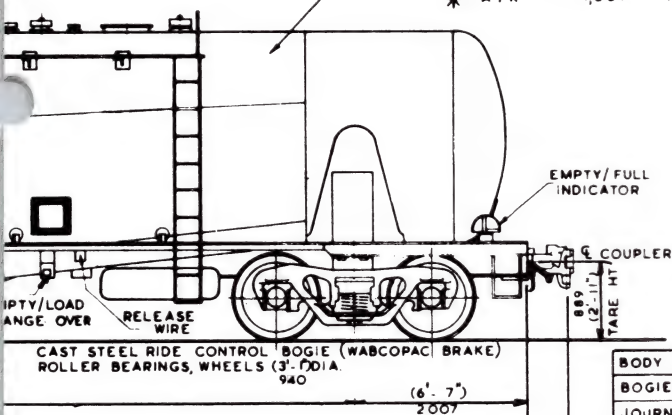
Bogie Vehicles.

- AX Car transporter wagon, 59 ft long.
- ALX Car transporter wagon, 76 ft long.
- BB Steel box van, ex BMF & BP classes fitted archbar bogies.
- BLF Steel box van, strengthened floor for palletised bagged cement.
- BLX Steel box van, general traffic.
- BMX Steel box van, general traffic.
- BP Identical to BMX except fitted with 70 mph bogies.
- CJ Bulk cement wagon, gravity discharge.
- CSX Coil steel wagon.
- E Open wagon, 44 ton cap.
- ELX Open wagon, 50 ton cap.
- ESX Open wagon, steel transport, rails etc.
- EX Upgraded version of the original E wagon.
- FCF Skeletal container wagon for 2 x 40 foot jumbo containers.
- FP Horse Box.
- FQX Flat wagon, ISO containers.
- FX Bulk flour wagon, pneumatic discharge
- FVF Single unit Flexi-van.
- GJF Bulk wheat hopper, 2 types, aluminium and steel.
- HD Departmental vans, ex Tt insulated vans.
- HH Casualty vans, Nos 1-6 ex Oo class 12 wheel coal wagons, Nos 7-12 ex Tt insulated vans.
- HR Flat wagon, wheel sets and complete bogies between workshops.
- JX Bulk cement wagon, pneumatic discharge.
- JCX Cement hopper wagon, gravity discharge.
- JDX Dolomite and limestone hopper wagon.
- JSX Sand hopper wagon.
- JQX Ballast hopper wagon.
- KR Flat wagon, run in sets for continuously welded rail.
- LF Sheep van, fitted with ride control bogies.
- LP Sheep van, fitted with 70 mph bogies.
- LL Sheep van, fitted with archbar bogies
- MF Cattle van, fitted with A3 ride control bogies.
- NN Ballast hopper wagon.
- OH Overhead vans, departmental use, ex Ff class horse boxes.
- Q Flat wagon, general use.
- QAB Flat wagon, particle board traffic.
- QB Depressed centre wagon, some now fitted with roller bearing bogies.
- QCX Flat wagon for LCL containers.
- QD Crawler crane transporter wagon.
- QF Flat wagon, as for Q class but with ride control bogies.
- QH Flat wagon, 90 ton capacity.
- ZLP Wooden bodies van, fitted with periscope as is CA van. 80 no.
- ZF Steel bodies van, fitted with aligned bogies. 50 no.
- 'F' classification on bogie vehicles indicates suitable for 60 mph.
- 'P' classification on bogie vehicles indicates suitable for 70 mph.
- 'X' classification indicates suitable for bogie exchange and 60 mph.
- All other goods vehicles 45 mph maximum
- Fixed Wheel.
- B Box van, general traffic.
- DW Domestic water tank wagon.
- FJ Bulk flour wagon, pneumatic discharge.
- GY Bulk wheat and superphosphate.
- H Box vans, various types, departmental use.
- HD Enclosed wagons, various types, as above.
- HR Flat top wagon, for transporting wheel sets.
- I Open wagon, general traffic.
- IA Open wagon, general traffic.
- IC Open wagon, doors welded, modified for tipping.
- IK Safety wagon for pipe transport.
- IT Timber traffic.
- IY Open wagon, general traffic.
- IS Open wagon, timber scantlings.
- J Bulk cement, pneumatic discharge.
- K Flat wagon.
- KAB Flat wagon, pyneboard traffic, adjustable bulkheads.
- KB Flat wagon.
- KC Flat wagon, LCL containers.
- KCC Flat wagon, bulk cement containers.

- KL Container loading platform wagon.
 KMC Flat wagon, LCL containers.
 KPC Flat wagon, special container traffic.
 KPW Pulp wood wagon.
 KQ Flat wagon, container traffic.
 KR Flat wagon, continuously welded rails.
 KS Flat wagon, modified for timber scantlings.
 KT Open timber wagon.
 KW Chipwood wagon.
 KMQ Flat wagon, single ISO container.
 L Sheep van.
 M Cattle van.
 MB Cattle van, for bullocks.
 N Ballast plough wagon.
 O Open hopper wagon.
 OC Covered hopper wagon for sand traffic.
 OH Overhead vans, departmental use, ex F class 6 wheel horse boxes.
 ON Open hopper wagon.
 P Explosives van.
 RY Open wagon, ex HY class, 27 ton capacity, derated to 22 ton.
 T Iced refrigerated van, 3 types.
 U Louvre van, 3 types.
 WA Weedex tank car.
 WTT Weighbridge test truck.
 W, WK, WM, WS, WW, WZ, HW. - Various Way & Works sleeping cars etc.
 Tank cars, various, departmental water tanks, also private and departmental oil and fuel tanks.
 QN Ballast hopper.
 QR Open wagon, two types, 38 foot & 43 foot, 3 doors & 4 doors each side.
 QS Special wagon, 120 ton or 171 ton, 4 x 4 wheel bogies or 4 x 6 wheel bogies.
 QTF Container wagon for tallow tanks.
 QW Well wagon, 150 ton capacity, 4 x 6 wheel bogies.
 QWF Well wagon, 60 ton capacity, 2 x 6 wheel bogies.
 S Flat wagon, general purpose.
 SX Flat wagon, as above, fitted with ride control bogies.
 SBX Flat wagon with bulk heads for plaster board traffic.
 SCX Flat wagon with cushioned cradles for cable drums.
 SFX Flat wagon with low bulk heads, 63 foot length.
- SKF Flat wagon, carries two 37 foot containers.
 SKX As above, also general traffic.
 TP Iced refrigerator van, 4 wheeled vans fitted with express bogies from scrapped FP horse boxes.
 TVF Double unit Flexi-vans.
 TVX As above, but for bogie exchange.
 UB Louvre van, 4 wheeled vans fitted surplus archbar and bettendorf bogies.
 UF As above, fitted with A3 ride control bogies.
 V Louvre van, wooden body, single centre door each side.
 VF Louvre van, two types, single centre door and two end doors each side, some now fitted with aligned bogies.
 VHX Louvre van, steel body, 55 ft long, 50 ton capacity.
 VLX Louvre van, steel body, 43 ft long, 40 ton capacity.
 VP Louvre van, two end doors each side, fitted express bogies.
 VSX Louvre van, steel body, 56 ft long, 50 ton capacity.
 TW Tank wagon, fuel oil and petroleum products.
 TWF Tank wagon, as above, 50 mph loaded, 60 mph empty.
 TWX Tank wagon, as above, suitable for bogie exchange.
 W Tank wagon, 7000 gal water tank for Weedex train.
 WA Tank wagon, weedex concentrate for Weedex train.
Goods Brakevans - Fixed Wheel.
 Z 4 & 6 wheel end cupola, wooden body. 9 no.
 ZB 6 wheel, ballasted with concrete blocks. 19 no.
 ZL 4 & 6 wheel, fitted with long shank auto couplers. 395 no.
 ZP 6 wheel, formerly used in passenger service, suitable for running at 60 mph.
Goods Brakevans - Bogie Vehicles.
 CA Converted from surplus 'C' centre cupola passenger guards vans. 15 no.
 CP Steel bodied express freight van. 30 no.
 JCP As above, joint stock for Adelaide fast freight service. 9 no.



COMPARTMENT CAPACITIES - PETROL - 7,829 GALLONS
 DISTILLATE - 7,000 "
 * ATK - 7,531 "



BODY ARR'G'T	DRG No 52997	
BOGIES 4'-8 1/2" GAUGE	DRG No 52490 AAR 2D	
JOURNAL SIZE	11" x 6" EQUIVALENT	
WEIGHT ON RAIL	(93 T - 15C - OQ) 95 254 kg	
TARE	(22 T - 14C - 1Q) 23 077 kg	
LOAD	(71 T - 0C - 3Q) 72 177 kg	
AIR BRAKE	WESTINGHOUSE (ABSD)	
BRAKE CYLINDER	4 X 9" DIA ON BOGIES	
BRAKE % AIR (EQUIVALENT CAST IRON)	TARE 49.2 %	LOAD 29.8 %
BRAKE % HAND (EQUIVALENT CAST IRON)	TARE 36.3 %	LOAD 8.7 %
EMPTY/LOAD BRAKE	YES	
GRADE CONTROL	No	
CAPACITY PET	73 SG	20,938 GALS
CAPACITY DIST	85 SG	18,720 GALS
CAPACITY ATK	79 SG	20,141 GALS

W A G R.

CLASS	WJK
TANK (3 COMPARTMENT)	
PETROL - DISTILLATE -	
ATK - BP	

Do you need a diamond crossing?

by REX LITTLE.

Early in December I received the following letter. In preparing a reply I decided to answer via the pages of Journal, and thus try to put some ideas into other minds as well.

P.O. Box 229,
Darwin.

A cry from the "Top End", as the locals call this part of Australia.

A friend, who is interested in building an N gauge layout, and myself, being involved in building an HO gauge layout, have come across the same problem upon which we would both appreciate some advice.

We both need diamond crossings to specific measurements - the ordinary commercial ones are not suitable as the

angles of the crossings do not fit our requirements.

I would be grateful therefore if you could let us know of anyone who could build these for us on a commercial basis. The need is urgent as my own layout is well under way, and my friend's layout is slowly coming out of the design stage.

Yours faithfully,

A.J. Cruikshank.

Anybody who uses commercial 2 rail track of any size can build themselves a diamond crossing in situ in one afternoon. The following step by step photographs were taken between 1 pm. and 5 pm. one Saturday afternoon, using HO Lima rail.

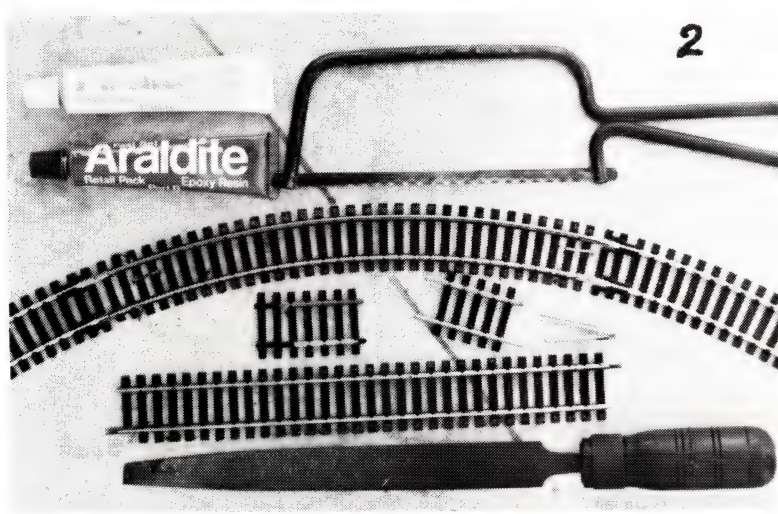


Photo 2. Some of the tools and materials required. You may note I was using 5 minute Araldite.. Resiweld is another fast setting adhesive.

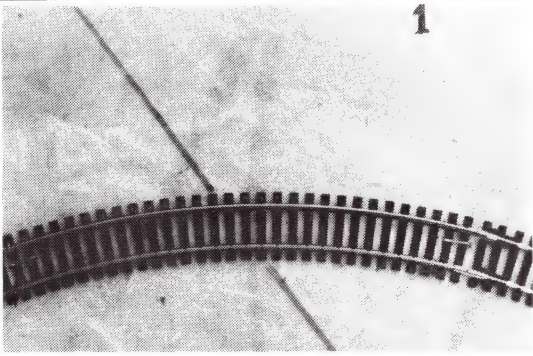


Photo 1. The line shows where the crossing will be. If your crossing involves a curve, work as shown in the photographs.

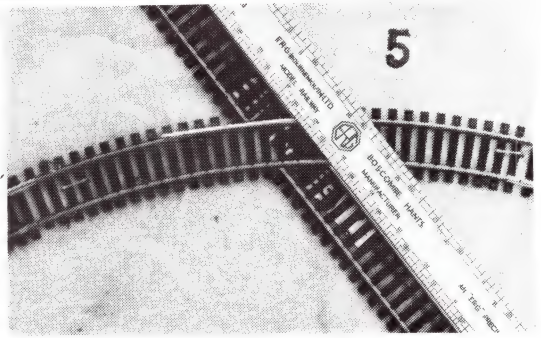


Photo 5. Glue in place, using a rule or straight edge to align the two pieces of track. Strips of .020" styrene sheet are used to insulate the rails from each other.

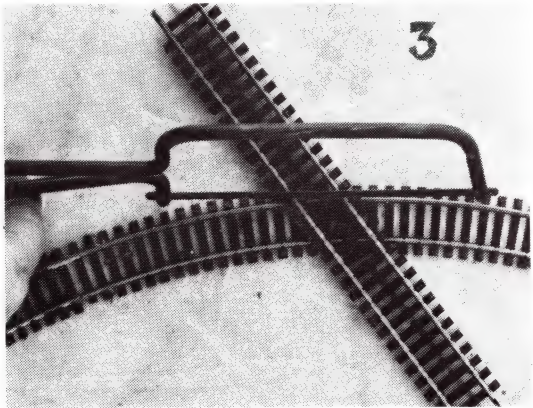


Photo 3. Lay the straight track in place and cut with hacksaw, using the rail underneath as a guide for angle.

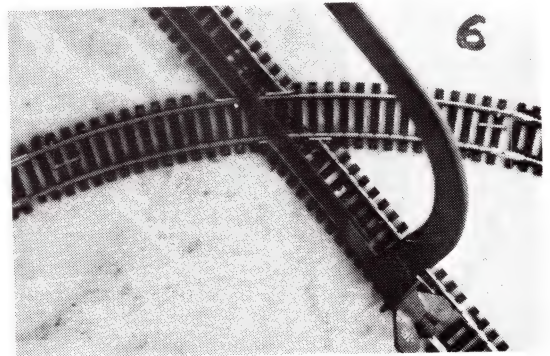


Photo 6. Using an ordinary hacksaw, with 2 blades fitted, cut through the rails of the main (curved) track.

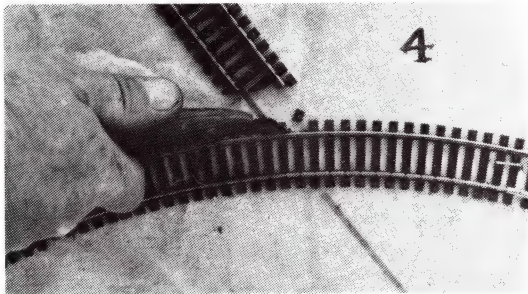


Photo 4. Remove the ends of the sleepers flush with the rails where the crossing track will be fitted.

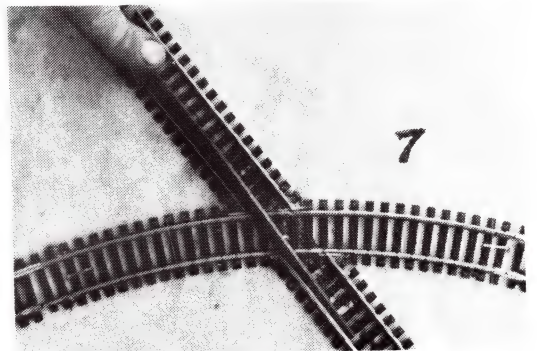


Photo 7. Clean up, using the edge of a flat warding file.



Photo 8. Cut a piece of scrap rail to length, solder hook up wires to it, and together with a suitably shaped piece of 1/8" masonite, glue in place.

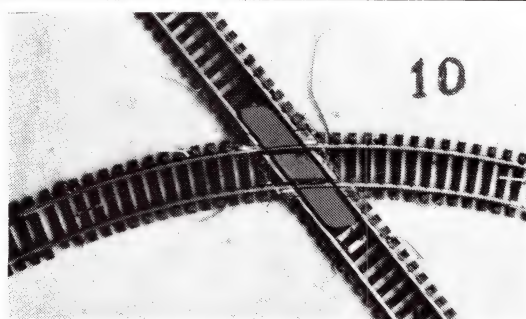


Photo 10. Guide rails can simply be made of 1/8" masonite glue in place.

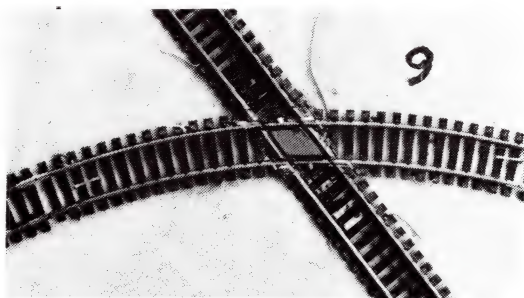
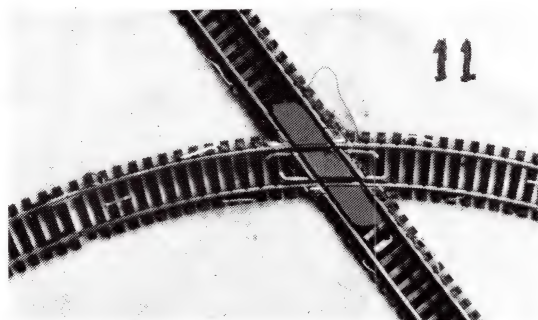


Photo 9. After soldering your hook up wires to the crossing part of the curved rail, cut the rails on the outside of the crossing, insert insulating material and glue in place.



Finally get out your 12" flat file and carefully run it over the crossing to bring everything down to the one level.

Photo 11. Guide rails on the curved track are made of scrap pieces of rail glued in place.

JOURNAL PLANS INDEX

By Broughton Boydell.

Did you ever want to build an elephant wagon and did not know where to find the plan? Well, just look down this list.

N.S.W.R.

Goods brake van, code LHG
 Goods brake van, code MHG
 Passenger brake van, code MHO
 Cattle van, code CW
 Cattle van, code CW
 Locomotive class P code C32
 Wagon, class A
 Trestle bridge
 Bogie wagon, code G
 Bogie wagon, code F and BWF

Journal

Sept. 1964
 Sept. 1964
 March 1965
 March 1965
 Jan/Feb. 1974
 Nov/Dec. 1966
 July/Aug. 1969
 Sept/Oct. 1970
 Mar/April 1970
 Mar/April 1970.

Four wheeled louvre van	May/June 1970
Bogie cattle wagon, code BCW	Mar/April 1971
Bogie louvre van, code LLV	Sept/Oct. 1971
Bogie flat wagon, code OCX	Nov/Dec. 1971
Bogie ballast wagon, code BBW	Jan/Feb. 1972
Four wheeled van, code LV and ABV	Jan/Feb. 1972
Shunter's wagon, code L	May/June 1973
Bogie goods brake van, code MHG	May/June 1973
Bogie wheat hopper, code BWH	Jan/Feb. 1974

Q.G.R.

Cattle wagon, class IC and ICC	May 1965
Elephant wagon	May 1965
Cattle wagon, class K, 1st and 2nd series	May 1965
Cattle wagon, class KS	May 1965
Four wheeled coal hopper, class VR and V	May/June 1973
Four wheeled coal hopper, class VJM, 1st and 2nd series	May/June 1973

S.A.R.

Diesel electric loco, class 930	Sept/Oct. 1970
---------------------------------	----------------

W.A.G.R.

Bogie wagon, class WF	May/June 1971
MRWA brake van	Nov/Dec. 1974

V.R. - 2'6" gauge.

Locomotive, class NA	Sept. 1964
Beyer-Garrett locomotive	Sept. 1964
Brake van, class NC	Sept. 1964
Combination brake van, class BC	Sept. 1964
Passenger car, class NB	Sept. 1964
	Nov/Dec. 1967
Cattle wagon, class MN	Sept. 1964
Goods van, class NBC	Sept. 1964
Gondola wagon, class QR	Sept. 1964
Passenger car, class NB	July/Aug. 1967
	Nov/ Dec. 1971
Excursion car, class NBH	Sept/Oct. 1967

V.R. - broad gauge.

Walker 200 HP rail car, class RM	Jan/ Feb. 1967
Four wheel wagon, class I, RY, GY	Sept/Oct. 1969
Four wheel louvred van, class U (11½ ton)	Sept/Oct. 1969
Brake van, class Z	Nov/Dec. 1969
Electric locomotive, class E	Nov/Dec. 1969
Four wheel van, class B	Jan/Feb. 1970
Four wheel louvre van, class U (16 ton)	Jan/Feb. 1970
Bogie louvre van, class UB (16 ton)	Jan/Feb. 1970
Bogie louvre van, class VHX, VLX	Mar/April 1970
102 HP Walker rail car, class RM	Jan/Feb. 1971
Locomotive class S	May/June 1972
Electric locomotive, class L	May/June 1974
Tank locomotive, class D4	Sept/Oct. 1974

I was fed up with trying to find a wanted plan so I made out the above lists, and was surprised to find that there was an elephant wagon on an Australian system.

Better model railway electrics

by Alan Dowel

NO. 8 CHECKING AND ADJUSTING 3000 TYPE RELAYS.

This is the eighth of a series written by Allan Dowel based on his experience as electrical engineer with the Melbourne Model Railway Society.

The more recent method of maintenance used by the P.M.G.'s Department on 3000 type relays is "leave them alone unless they fail". I could not recommend any better system to model railway enthusiasts. However, there are three reasons why you may need to do some adjustments on your relays:

1. They may have been damaged by careless handling between the P.M.G. and your home or club.
2. You may find it necessary to swap coils and springsets about and this quite often means a little readjustment.
3. The relays may in fact have been used by the P.M.G. to the point where it was about to fail for want of readjustment, but this is quite rare.

You can rest assured that with reasonable handling, most relays will be ready for your immediate use without need for these adjustments.

Changing a coil assembly.

1. Remove the ARMATURE RETAINING SCREW with a pocket screwdriver. This is the little knurled cheese head screw with the coiled spring under the head, which holds the armature in place. Remove the armature.
2. Holding the relay flat on its side on the bench - springs to the left - undo the coil nut, using a heavy broad bladed screwdriver.
3. Ease the coil thread out of its hole in the relay frame.

Assemble by reversing the above.

DO NOT OVER TIGHTEN THE ARMATURE RETAINING SCREW. It has a small thread and is made of hard brass. A little more than finger tightness is adequate. You can kiss a whole relay frame goodbye if you don't take care here.

Changing a spring assembly.

1. If possible, use a tube spanner to undo the two outside screws only. If the heads are slotted you can use a screwdriver, but lay the relay on its side with the screw heads towards you and hold the relay firmly.
2. Replace with the desired springset. It will be necessary to slip the buffer spring lugs onto the buffer block. Only about half of the lug should sit on the buffer block. If you study several relays, you will notice that BUFFER BLOCKS come in five types. There is a small square step on the buffer block for each contact unit in the spring assembly, whether it be M, B, C or K.

Buffer blocks come in the following sizes:

Type	L/H side	R/H side
1	1	1
2	2	2
3	3	3
4	3	4
5	4	4

the numbers in the L/H and R/H columns indicating the number of contact units in the spring assembly it matches. Figure 19 shows a relay with two con-



FIG 19

RELAY WITH 2 STEP
BUFFER BLOCK

tact units in the L/H assembly, and one in the R/H assembly. The buffer block must be a type 2.

Checking relay adjustments.

1. Check that the following are tight:
(a) Coil nut. (1)

(b) Spring assembly screws. (3 each)

(c) Buffer block screws. (2)

2. Check that when the armature is operated by hand, that it moves all LEVER SPRINGS sufficiently to ensure that they actually lift all BUFFER SPRINGS off the buffer block steps. If this does not happen, it may be due to the armature not moving sufficiently. This can be checked by placing "feeler" gauges between the coil core face, and the residual stud or screw of the armature. The correct distance is 0.31" and up to .033" is allowed.

If necessary, remove the armature by removing the armature retaining screw, and open the angle of the armature slightly by bending or tapping the angle.

3. The two contacts at the end of each spring should "make" with those of its partner spring, simultaneously. To check this, place a piece of white card on the table and work under a strong light. The tips of the LEVER SPRING only should be bent to correct this (Figure 20).



FIG 20

**BOTH CONTACTS SHOULD
TOUCH SIMULTANEOUSLY**

If the adjustments are outside of these limits, perhaps because your relay has been damaged, then you would be wise to refer your problem to a member who is a P.M.G. technician. There are plenty in the clubs. They will have the special skills and access to the special adjusting tools required. Generally speaking however, it is cheaper to throw a badly damaged springset away and use another.

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LIMA PREISER

SPLIT POTENTIAL CORRECTIONS.

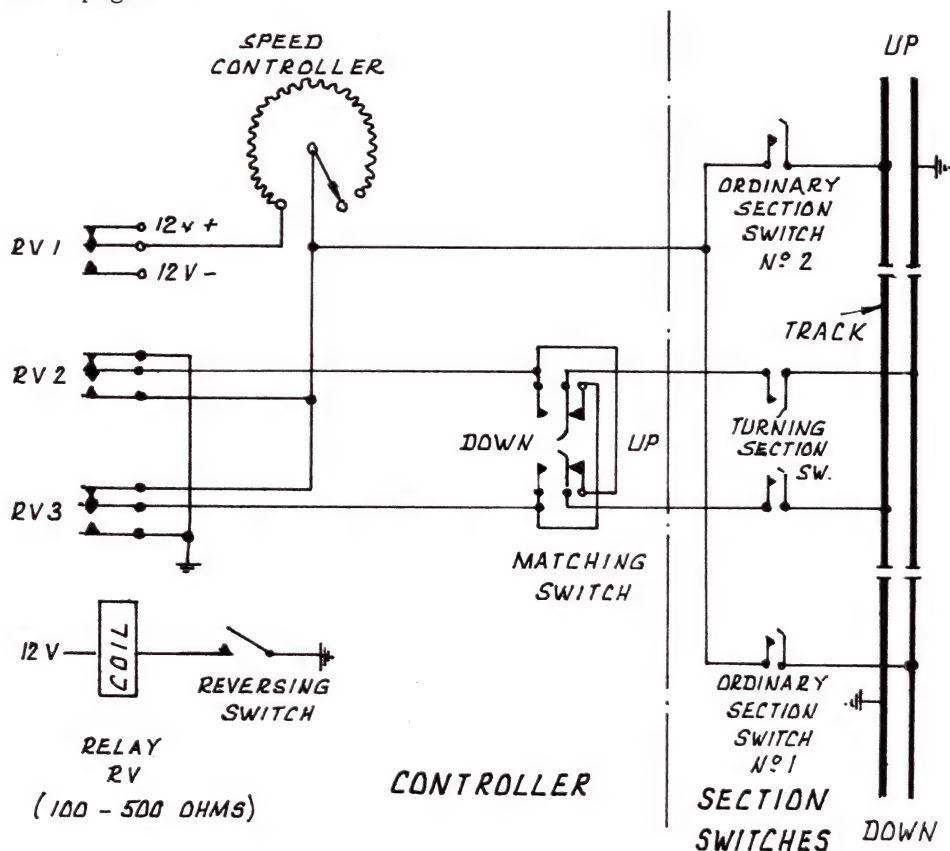
The article by Allan Dowel which appeared in the April/June 1975 issue turned out to be a disaster right from the first word. (It was titled SPIT POTENTIAL).

We apologise for the errors, the main one being that Allan's circuit description referred to his rough circuit drawing which showed the track in Fig. 3 running up and down the page, whereas our draftsman neatly redrew it across the page!

We now reprint the drawing as Allan originally intended, and we suggest that you mark your copy of April/June 1975 (Fig. 3 on page 48) "See July/Sept 1975 issue for correct drawing.

Journal No. 114, page 11, right-hand column, line 19. 200 ohms should read 2000 ohms. Sorry about that Allan.

Rex Little.
Editor.



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FOR
READER'S
LETTERS

The Editor,
AMRA Journal.

Dear Sir,

I was interested to read the remarks of the Secretary under the "Secretary's Desk" in the April/June 1975 issue of the Journal.

The problems of clubs and Associations, private citizens and business look a good deal the same in many respects. Most stem from the same causes.....That of inflation. Where "inflation" came from, only those who are economists or politicians can tell you. Each tells you something different....so that by the end of a month's reading, watching TV and listening to your favourite radio station, you become an authority on the subject....if you have dealt wisely with the printed matter and decided which of the 157 true reasons is the right one. Having at that stage decided what is the cause of inflation, you are in a good position to decide and to know why house telephones, and second class mail postage is so high. If you happen to decide that the reason of the inflation is that it was imported, you may be surprised to learn that it is cheaper with bulk lots of second class mail to sea freight it to Britain, Peru, Zeebar Island etc. and have them post each to its ultimate destination than it is to post the single articles in Australia. Then you see the theory you had was wrong and you go drag all the papers out and start again.

So whatever the cause of the inflation was, nearly everybody in the community is suffering from its effects. Some of the community has managed, in money income, to get ahead of

the cost rises, but the remainder are no more than level with it. To most of us, the "value" of anything is being judged by our opinions of yesterday.....despite thinking "we're with it" we really aren't. This out-of-dateness applies equally to housing as to an AMRA subscription. We just can't see why it should have gone up. A friend sold his house recently. He got 50% more than he thought it worth 3 years ago. He was elated. He was most distressed to find the new house he had his eye on had gone up 50% too. (He's now living in a caravan). He can't understand how the new house could possibly have gone up 50%. Of course, his own wages have gone up 40% and he gets much more holidays - which are perfectly useless to him to help pay for the new house. Me - I'd rather have the money than the extra holidays. It is as well you prefer the holidays to the money.

The foregoing should convince you that the Journal is now worth twice as much as it was, when it was only worth half as much as it is now.

Efforts to compare "Model Railway Newsletter" at 10¢ (posted 35½¢) with the Journal are fruitless. You might equally well say that Monday's "Age" (Melbourne) should be priced at one-quarter of Saturday's, because it has only one-quarter as many pages in it, or that some other magazine is overpriced, because of the number of pages it has in it. AMC holds out no "brief" for its "Newsletter". Certainly there is a lot of effort by staff and contributors, but what the Secretary says about it is right...this is something we like doing and it helps to make the jobs we don't like doing a bit easier. Any

job, any business, comprising only things you don't like doing, eventually loses its staff and conks from sheer weariness.

The problems of country members in Australia-wide associations, are not confined to Model Railways. I belong to a number of them, that have nothing to do with trains. Let's just look at - for example - the Australian Institute of Management. They carry out great things in the way of lectures, courses, and luncheons etc. To each of these I am invited. To go to any of them involves me in travelling time and the cost thereof. Quarterly I think, there is a magazine and more often notes on books and lectures etc., and on rare occasions local courses for girl secretaries, and equally occasionally something else. It could be said, that all a country member can use, without much loss of travelling time and costs thereof, is....the quarterly magazine. Of course, in the event that I should want to use the membership as a warranty for a job or something, being a member might convey some amount of assistance. But then, if I was looking for a job with say Hobbyco, membership of AMRA might stand me in better stead.

Well, what is the answer? Personally, I don't see one, unless it is that country members pay a reduced subscription in line with what they get for their money. The problem, however goes deeper. Your subscription amount PLUS what effort you put into the association, if you are a city member is the total amount. Your Association gains status from the effort people put into it, and it is this factor that keeps the Association rolling, and this largely is what your subscription is buying not the Journal alone, but the pleasure that comes from belonging to an Association, which is high in repute, well organised, and which through its Exhibitions and consequent likely mention on TV and through the press, adds prestige to the Hobby of Model Railwaysand they didn't have much of that in Australia before AMRA got under way!

How much effort did you put into AMRA last year along with your subscriptions? Did you do four articles for the Journal? Did you attend an Exhibition and offer your services to help staff it? Did you co-incide a break to the "big smoke" to co-incide with a meeting and help eat the scones? Did you ask the problem panel a lot of curly questions they couldn't answer? If you didn't, then stop wingeing and see you do it this year! If you do so - you'll find at the end of that year you'll take real pleasure in paying the following year's sub. and what's more you'll really think it is a very low sub. indeed.

My subscription to the Australian Institute of Management is many times the sub. of belonging to the AMRA, or that amount plus the effort put into it, and although my membership in that body adds neither status to me here, nor confers any direct benefit, I am glad to be able to pay the subscription, as I know that my dollars will help to build a better Australia through the education on management functions, amongst those lucky enough to be able to take part in the activities. So go thou and do likewise with the AMRA.

Bill Gardner.
A.M.C. Albury.

Dear Sir,

In reply to Mr. Hoffman's comments on my recent Protofour article, I wish to express surprise that he does not know a basic rule regarding the expression of dimensions. This rule is that if a dimension is given without uncertainty or tolerance, it is implied that the value is correct to within one digit of the last significant figure. Hence a 5½" tyre (which by the way is the most Common British locomotive size) in 4mm scale comes out at 1.8mm rounded to one decimal place or 1.83 rounded to two decimals (not 1.82 as Mr. Hoffman states.

Getting away from pedantic trivialities, Mr. Hoffman is quite correct in pointing out that the stability question was overstated. My own understanding of the subject is far better now than when I last put pen to paper.

However, I do not agree with Mr. Hoffman that there is no transition between stability and complete lack of stability with reference to "wheel dropping" as the wheel negotiates crossings. The question is not whether or not the wheel drops, but by how much the wheel drops. Once the critical value of tyre width to flangeway ratio is reached, or more precisely the ratio N/F ($1 + \sec A$), where N is the tyre width, F is the flangeway dimension and A is the crossing angle, any further slight decrease in this ratio will cause only a slight instability. At a right angled crossing for instance the ratio is zero, but there is by no means complete lack of stability at such crossings.

P.J. Betts.

The Editor,
AMRA Journal.

Dear Sir,

I have grave doubts on the correctness of some of the statements made in the article on page 61 of your April/June issue of the AMRA Journal (No.115) which described the Protofour layout of the North Shore R.M.A.

Firstly, the wheel thickness chosen is not "exactly to scale". Exact scaling in 4mm/ft of any prototype wheels does not produce a tyre thickness of 1.8mm. The 5", 5½", 6" and 6½" prototype tyre thicknesses would produce 1.67, 1.82, 2.00 and 2.17mm respectively. It seems that the club has selected a thickness close to the most uncommon of the prototype values.

This may seem trivial, but it has a bearing on the second matter, which is the claim made later in the article for

superior stability due to the higher tyre thickness to flangeway ratio. I have assumed that the stability referred to is the avoidance of wheel-drop as the wheel passes in front of the point of the crossing vee.

There is no such thing as "theoretical lessening of stability". There is stability or complete lack of stability. Provided that the ratio of the tyre thickness to the crossing flangeway is greater than 2.15 there is no wheel-drop for crossing angles up to 29½ degrees or up to 60 degrees if the ratio is greater than 3.

In prototype this ratio ranges from 2.86, for the common 5" wheels, to 3.71 for the massive 6½" steam locomotive tyres. In HO "fine scale" a flangeway of 1.1mm and a tyre thickness of 2.5mm gives a ratio of 2.36. It appears from the figures given in the article that the minimum flangeway distance is 0.55mm and this gives, with the selected tyre thickness of 1.8mm a ratio of 3.2. Probably the actual flangeways are more often greater than the minimum of 0.55mm and a ratio less than 3.2 is more common.

Thus for crossing angles up to 42 degrees (where the ratio of 2.36 is insufficient to maintain stability) there is no difference between proto-four, prototype and HO fine scale. All have the same stability. Also the above figures show that there is no factor of 2 involved in the ratios from different sets of standard dimensions in practice.

R.P. Hoffman.
Epping N.S.W.

WANTED.

Your old Triang Transcontinental Bulk Cement Hopper, R137. Can be minus bogies and roof, \$1.50 each, all postage refunded. See me at the monthly meeting or write to Geoff Brown, 4/157 Holmes Road, Moonee Ponds, Vic. 3039.

Branch Reports

VICTORIAN

BRANCH NOTES



Club Night meetings are held on the Second Thursday of each month, at 92 Wills Street, Glen Iris, commencing at 8 p.m. The Clubroom is open for work on the Club Layout EVERY Wednesday night. Scratch Builders meet at the Clubroom, on the First and Third Wednesdays of each Month. Crazy Whist nights are held at the Clubrooms on the First Saturday of each month, commencing at 8 p.m.

VICTORIA.

Club meetings are held on the second Thursday each month at Tim Dunlop House 92 Wills Street, Glen Iris, commencing at 8 p.m. The clubrooms are open at 7 p.m. on these nights for operation of your train on the club layout. Working bees or operation on the club layout are held every Wednesday night, with the exception of the Wednesday before the monthly meeting.

Scratch builders under the tutelage of Terry Jenkins meet the third Wednesday night of each month at the clubrooms and for those of our members and friends who play Crazy Whist, the clubrooms are open the first Saturday of each month under the direction of Eric Doherty with the games starting at 8 p.m. sharp.

The Annual General Meeting of Vic Branch was held on 11th April, 1975, with about 80 members in attendance and the following officers were elected:

President	J.J. Treseder
Vice President	N. Ryan
Secretary	J.J. Harry
Treasurer	S. St. J. Westerman
Committee	W.J. Morehouse
	T.R. Little
	J.A. Humphries
Other appointments were:	
Librarian	T.B. Southwell
Exhib. Organ.	A.H.G. (Jim) Scott
Social Organ.	E.S. Doherty
Property C'tee.	E. Inchley
	E.S. Doherty
	J.A. Humphries

Our executive committee contains both old experienced type officials and new blood in Noel Ryan and John Humphreys and we hope the ideas they have to contribute will prevent us from becoming complacent.

A mini-exhibition is being organised by Stuart Hay and members of Ivanhoe sub-branch to be held at the clubrooms over the weekend 30th/31st August with admission prices, adults 40¢, children 20¢.

Our Annual Exhibition will be held at Camberwell Civic Centre over the Moomba weekend 5th-8th March 1976, and this year we have booked the theatrette as well as the main hall to provide 15000 square feet of floor space, which, when filled with operating railway models, we have no doubt will be the greatest Model Railway Exhibition in the Southern Hemisphere. Jim Scott and his committee have tentative bookings from interested organisations and private members to fill all available space, and it is hoped the variety and calibre of exhibits will please even the most critical viewers.

If you will be in Melbourne over that weekend and would like to assist us to staff the Exhibition, please let us know.

The agenda for the next three months is as follows:

August.

- 2nd Crazy Whist at clubrooms 8 p.m.
- 9th Family film night - courtesy of Jim Scott - organised by the Ladies' Auxiliary.
- 14th Monthly meeting - running night on club layout. Competition bridge or trestle.

September.

- 6th Crazy Whist.
- 11th Monthly meeting - Puffing Billy Preservation Society. Competition - Photograph Puffing Billy and/or environment.
- 12th Dinner Dance at Swagman Restaurant, organised by the Ladies Auxiliary.

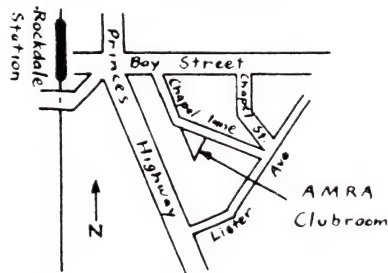
October.

- 4th Crazy Whist.
- 9th Model Railway Planning - Allan Dowel. Competition - construction, box or louvre van.

Programs for 1975/76 were distributed to members at June meeting and will be available at future meetings. If you are interested in receiving advance notice of Vic. Branch activities, a self addressed stamped envelope to the secretary will gain you a copy of the program.

John J. Harry.
Hon.Sec.

NEW SOUTH WALES BRANCH NOTES



Meetings are usually held on the first and third Saturday afternoons in the month, and the second and fourth Fridays. Details of coming meetings are listed below.

NEW SOUTH WALES.

This year's film night and dinner was held on 3rd May and was a great success, being attended by about 90 persons. The main feature was Carry on Camping, and this was preceded by some old Charles Chaplin silents. It would be hard to decide which got the major laughs.

The Open Day on June 7th was attended by about 60 persons, though only about one third of these were visitors, not as many as we would have liked. The big "HO" layout was running and a small "N" gauge layout was available.

Friday 23rd May saw a visit from the 1st Penshurst Boy's Brigade. This was rather a riotous meeting, but the boys were welcome guests and a good time was had by all.

This year's Exhibition will be held as usual, at the Sydney Town Hall. Like everything else, the cost of running the exhibition is in the deadly grip of inflation. One cost along, the hire of the hall is up by 50% on last year. This massive increase rather staggered your committee to say the least. Vehicle access will be more restricted than last year, due to part of the parking area being closed off so please, exhibitors and others, don't clutter up the access with unnecessary vehicles.

Voluntary workers at the exhibition have to be fed, and the burden that this places on the ladies is of increasing concern to the committee. Over three hundred full sit-down meals are served and the humble cup-of-tea-and-biscuits are prepared quite literally by the thousand. All this is in addition to serving the public with tea, coffee, meat pies, sandwiches; and soft drinks, sweets, chips etc at the Nibble Bar.

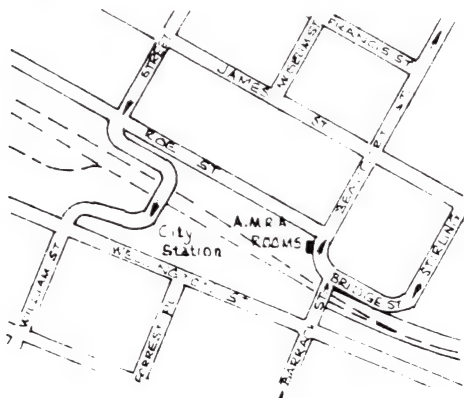
Accordingly, something tried on a small scale last year is going to be expanded this year and that is to roster males for kitchen duty. Fellows, if

you expect to eat, expect to do a little kitchen duty too.

A guessing competition has been organised by the Ladies Auxiliary for this year's exhibition, the prize being a "N" gauge coffee table layout, measuring three feet by two feet. Fantastic Hobbies have donated the loco and rolling stock, while Australian Modelcraft donated scenic items and buildings.

Bran J. Parker.
Branch Reporter.

WESTERN AUSTRALIAN BRANCH NOTES



WESTERN AUSTRALIA.

Branch meetings are held at our building No. 1 Beauford Street, Perth, on the evenings of the first Monday and the third Wednesday of the month at 8 p.m. Also on Saturday afternoons as designated by the program.

At the A.G.M. held on the 5th May 1975, the following officers of our branch were elected:

President	Tony Gray
Vice President	Ted Thoday
Secretary	Margaret Eagles, 26 Swan Road, High Wycombe, 6057.
Treasurer	Marge Durham
Exhib. Co-Ord.	Jack Eagles
Committee	Ross Hurley Gus Durham Ron Congdon.

The branch is doing its part in promoting equality of the sexes by electing two of the fairer sex onto the committee. May be this might encourage more wives to take a more active part, not only in the hobby, but in our branch as well.

As these notes had to be written at the same time as our branch May Newsletter, there is nothing new that can be said here except to encourage you to read your program and take note of the very attractive program drawn up by the committee. Especially the talks and demonstrations to be held on the Wednesday evenings, on basic railway modelling and layout construction, especially for newcomers to the hobby, but we are all newcomers in at least one aspect of this hobby, aren't we?

If the program still is not enough to attract you, then how about a visit to run your trains on our excellent "exhibition" layout or for just a chat with friends in a Model Railway atmosphere. To our fellow AMRA members in the other branches we extend to you an invitation to visit us if you are in Perth at any time.

Program: Weekdays at 8 pm. Saturdays 2 pm.
July.

Mon. 7th Slide evening - Don Lorimer.
Sat. 12th Operating and discussion.
Wed. 16th Basic railway modelling - introduction and what to buy.
Sat. 26th Layout operation and junior projects.

August.

Mon. 4th Locomotive maintenance - clinic, Jack Eagles.
Sat. 9th AUCTION.
Wed. 20th Basic railway modelling - layout construction - baseboards.
Sat. 30th Layout operation and junior projects.

September.

Mon. 1st Soldering with Ted Thoday.
Sat. 13th Cake stall - layout operation and discussion.
Wed. 17th Basic railway modelling - layout construction - track laying.

Sat. 27th Layout operation and junior projects.

October.

Mon. 6th Wagon construction - clinic - Tony Gray.

Sat. 11th) MODEL RAILWAY EXHIBITION.

Sun. 12th) C.S. Harper Hall, 300 Hay

Mon. 13th) Street, Perth.

Wed. 22nd Basic railway modelling - layout construction - electrical.

Sat. 25th Layout operation and junior projects.

November.

Mon. 3rd Problem night - put your questions to the panel.

Sat. 15th Layout operation and discussion.

Wed. 19th Basic railway modelling - layout construction - scenery.

Sat. 29th Layout operation and junior projects.

Would members please note that there will be a social evening in December like the very successful one last year, but actual date and place will be notified in our next club newsletter.

G.R. Watson.

Branch Reporter.

QUEENSLAND.

The Branch celebrated the 21st anniversary of its foundation on 17th May by holding a dinner at Wilsons 1870 Restaurant. About twenty five members and wives attended and spent a most pleasant evening wining and dining. After dinner we adjourned to the seclusion of a private room to chat and to make a few speeches. Steve Suggit, our only foundation member with continuous membership was presented with a gift. Some sort of wet stuff in a bottle. Secretary Malcolm Neilsen read the minutes of the first meeting and all guests signed the book. It was interesting to see that at that time consideration was being given to the adoption of standards for In3½, and that we have at this anniversary

two modellers in this scale after it has been virtually neglected for many years.

A working bee is being held on the second Friday night each month to prepare the club's layout for the November Hobby Show. The layout is at present at the home of Arthur Robinson. The number of tracks has been reduced from four to three. The narrow gauge line has been scrapped and the single standard gauge branch is being relaid to 3'6" with increased operating potential. Three substantial new bridges of varying designs are required at one end that is being extensively rebuilt. In addition the township and other features are being replanned. A great deal of work has to be done and extra hands are always welcome.

The annual auction is again being held at 112 Reeve Street, Clayfield, this year on the 6th September. Starting time is 2 pm sharp. Bring your unwanted model equipment, magazines, etc. and we will do our best to sell them for you. The club deducts 10% commission on all sales. The auction is not restricted to AMRA members, so tell all your friends. We can guarantee a pleasant afternoon. We do ask that if you wish to sell anything that you front up well before starting time to give the organizers a chance to record your equipment.

The ARHS Field Day at which the AMRA is presenting a trophy for dioramas has been changed to the 13th September. This has been brought about by an unforeseen change in the arrangements for ARHS steam tours. However, as last year, a steam train will run to Redbank Museum. The ARHS will be making announcements as to the running times.

Future meeting dates are:

Oct. 23rd 60 Fallon St. Everton Park.

Nov. 27th 32 Wana St. Sunnybank.

Jim Christie.

Branch Reporter.

News from other clubs

NORTH SHORE RAILWAY MODELLERS ASSOCIATION

This Association is holding its 4th Annual Model Railway Exhibition on the 2nd & 3rd August this year at the 1st Castlecrag Scouts Hall, Eastern Valley Way, Castlecrag. The hall is situated on the main road about 500 metres from Northbridge Shopping Centre. An Exhibition of high quality layouts is planned.

Junior members of this club enjoyed their first organised model railway

operating session on 3rd May. It is hoped that these will become regular monthly activities. Junior members are nominally those between the ages of 12 and 16 although younger ones are allowed to attend. It is planned to organise a sort of apprenticeship for these juniors so that once they have reached a certain standard in operating techniques, they will be permitted to join in on the senior activities. Also it is planned for the juniors to build their own layout. Peter Betts.

A.M.R.A. 25TH BIRTHDAY CELEBRATION.

The 25th Birthday Celebration will be held in Sydney over the Easter Week-end 1976. A tentative booking for accommodation for 30 to 40 people has been made at the Brighton Hotel, Brighton-le-Sands.

At this stage the approximate cost of attending the celebration will be as follows:

		Adults	+Child.
Members not requiring accommodation - Full Programme		\$39.00	\$30.00
Members requiring accommodation (3 nights) - Full Programme		\$107.00	\$69.00
(accommodation bed & breakfast, allowance has been made for substantial increases between now and the event)			
FRIDAY	Clinics & films at the N.S.W. Branch Clubrooms	\$4.00	\$4.00
SATURDAY	Rail Tour - Anticipated steam trip on the Picton Mittagong Loop.	\$8.50	\$4.50
	Saturday Night - Free (Make your own arrangements)		
SUNDAY	Layout visitations		
	Barbeque lunch		
	Birthday Dinner	\$17.00	\$17.00
MONDAY	Rail & bus trip to "Old Sydney Town" - Somersby		
	N.B. Luncheon is not included		
	Back to NSW Branch clubrooms for Farewell and "High Tea"	\$9.50	\$4.50

To reserve accommodation it will be necessary to notify the Federal Secretary, IMMEDIATELY, and include a deposit of \$25.00.

Members not requiring accommodation also notify the Federal Secretary, IMMEDIATELY, and include a deposit of \$10.00.

Balance by the 31st January, 1976, or installments may be made at any time, but payment must be completed by 31st January, 1976.

Any interstate visitors who do not wish to attend any particular part of the programme may care to visit the Royal Easter Show or take a Harbour Cruise.

We have endeavoured as far as possible to see that the figures quoted will cover any possible increases due to inflation.

Norm Read,

+ Children under 12 years.

3 Augusta Street,
Strathfield, NSW. 2135.
Phone: 642 3828.

	R.J. McCooey (J)	1 Osric Street, Ashburton. Vic. 3147	25 4307
OO	J.H. McKenzie	23 Hovea Terrace, South Perth. WA 6151	67 6286
R.	R.G. McLennan	Box 741 P.O. Mount Isa. QLD. 4825	
Newcastle District Model Railway Club C/- 148 Turton Road, Waratah.			
	North Shore Railway	C/- Mr. P.J. Betts, 40 Merrilee Cres. Frenchs Forest. 2086	
	Modeller's Assoc.		
HO/OO	L. O'Brien	3 Biltris Court, Jacana, Vic. 3047	309 2397
HO	A.C.R. Palmer(J)	7 Derby Street. St. Ives. NSW. 2075	44 6884
HO	A.J. Pearson	618 Hay Street, Perth. W.A. 6000	25 7686
	G.A. Pendlebury(J)	284 View Street, Bendigo. Vic. 3550	43 2761
	Mrs. V.M. Pendlebury(A)	284 View Street, Bendigo. Vic. 3550	43 2761
HO & N	G.L.A. Pimlott	589 Burwood Road, Hawthorn. Vic. 3122	819 1029
	Mrs. L.G. Price (Aux)	27 Washington Street, Bexley. NSW. 2207	59 5648
HO/OO	S. Pyrros (J)	52 Newman Street, Thornbury. Vic. 3071	44 3272
	K.J. Quinlan	19 Woodward Avenue, Strathfield. NSW. 2135	642 2923
HO	B.J. Rankin (J)	12 Finlays Avenue, Earlwood. NSW. 2206	559 1269
HO	E.C. Reynolds	16 Lancaster Street, Blacktown. NSW. 2148	621 3998
	N. Reckord (J)	68 Bringelly Road, Kingswood. NSW. 2750	21 4041
	(Aux) B.J. Ridge	16 Smith Street, Emu Plains. NSW. 2750	31 4696
HO	A. Rogers (J)	34 Delmore Crescent, Glen Waverley. Vic. 3150	232 4783
	J.M. Rolinson	52 Queensville Avenue, Lynwood. WA 6155	60 7908
	J.B. Rudland	8 Windemere Crescent, Nollamara. WA. 6061	49 6913
	M.D. Rudland (J)	8 Windemere Crescent, Nollamara. W.A. 6061	49 6913
HO	W.J. Rylance	44 Robey Street, Mascot. NSW. 2020	667 3908
OO9 NG	A.H.G. Scott	Flat 1, 95 Talbot Crescent, Kooyong. Vic. 3144	20 8625
N	B.R. Scott	20 David Street, Box Hill South. Vic 3128	89 8541
	G.J. Scott (J)	5 Milford Grove, Rosanna. Vic. 3084	45 5939
N	R.J. Scott	20 David Street, Box Hill South. Vic. 3128	89 8541
	B. Sindel	14 Sullivan Street, Blacktown. NSW. 2148	
	W.H. Smith	127 Chirnside Street, Kingsville. Vic. 3012	
HO/OO	B.G. Snowfoot	412 Liverpool Road, South Strathfield. NSW. 2136	
HO	S.A. Stapleton	1 Paris Place, Miranda. NSW. 2228	522 6477
HO & N	P. Street	9 Lisa Court, Mordialloc. Vic. 3195	90 8806
	W.A. Stuchbery	Yan Yean Road, Yarrambat. Vic. 3091	
HO & N	I. Tait	94 Heatherhill Road, Frankston. Vic. 3199	783 5715
	D.J. Taranto	18 Jacaranda Avenue, Baulkham Hills. NSW. 2153	639 7205
	K.J. Thomas	"Weribone", Surat. QLD. 4459	Surat 2
HO	I.R. Thorpe	10 Robinson Street, Punchbowl. NSW. 2196	759 1829
	R.F. Timson (J)	140 Ashburn Grove, Ashburton. Vic. 3147	25 5867
HO	M.J. Tuffy (J)	17 Larkhill Avenue, Riverwood. NSW. 2210	53 6710
	J.T. Van Gemert	10 Lorraine Avenue, Warrandyte. Vic. 3113	844 2098
HO	J. Van Lammeren	465 Hampton Street, Hampton. Vic. 3188	598 9768
HO Mrs.	M. Van Lammeren	465 Hampton Street, Hampton. Vic. 3188	598 9768
HO/OO	P.A. Volkart (Aux)	8 Anthony Crescent, Kingswood. NSW. 2750	
	R.G. Waixel	M.M.B.W. Upper Thomson, via Warburton. Vic. 3799	
Mrs.	Y.D. Waixel	M.M.B.W. Upper Thomson, via Warburton. Vic. 3799	
	I.R. Walker	51 Tina Street, Beaudesert. QLD. 4285	B'desert 357
	W.G. Ward	"Rose Brae", 1 Albert Street, Upper Ferntree Gully. 3156	
Warragul & District Railway Club P.O. Box 51, Warragul. Vic. 3820			
	S.R. Waters (J)	18 Gregory Crescent, Beverly Hills. NSW. 2209	529 1808
	P.J. Watson	6 Lancelot Street, Punchbowl NSW. 2196	709 8029
	J.M. White (J)	102 Longview Road, Croydon. Vic. 3136	
	H.M. Willis	Warner Bros. (Aust.) P/L. 7th floor 49 Market Street, Sydney, 2000.	73 5148
	R.P. Wilson (j)	84 Stafford Street, Kingswood. NSW. 2750	21 5149
	R. Winfield	52 Coolibah Drive, Greenwood. WA. 6024	
HO	A.L.G. Wise	6 Nott Street, East Malvern. Vic. 3145	50 3011
	P. Zetzman (J)	58 William Street, Mount Waverley. Vic. 3149	277 8797

Recommended AMRA Standard Specifications.

The following pages contain the proposals put forward by Mr. B.J. Betts and Mr. R.P. Hoffman for the new AMRA Standard Specifications. The following points of view have been adopted while formulating the various dimensions:

1. The dimensions and tolerances should be such that as wide a range of existing commercial equipment as possible should be acceptable without causing the rejection of any "fine" scale equipment in general use.
2. Dimensions should as far as possible be within close limits of those previously specified or those specified by other standards associations.

3. There should be realistic tolerances on all dimensions.

4. There should as far as possible be rational relationships between corresponding dimensions, tolerances and clearances on all gauges.

5. The dimensions should be presented in such a way that they may be of use to both the non-expert modeller who has little or no understanding of limits and tolerances; and the expert who wishes to obtain the utmost precision and reliability from his models.

All figures have been rounded to the nearest 0.005mm.

Wheels and Axles.

<u>Recommended Dimensions.</u> (millimeters)	32mm gauge	22.5mm gauge	16.5mm gauge	12mm gauge	9mm gauge
BB Back to back of flanges	28.7	20.0	14.45	10.2	7.4
T Effective flange width	1.2	0.85	0.7	0.6	0.5
N Tyre width	4.3	3.35	2.7	2.4	2.05

Critical Dimensions. (millimeters)

Permissible variations on the recommended dimensions are subject to the following critical limits.

BB Minimum back to back	28.5	19.8	14.3	10.05	7.3
BF Maximum effective back to front	30.15	21.05	15.3	10.9	8.05
FF Maximum effective front to front	31.5	22.1	16.2	11.7	8.75
T Maximum effective flange width	1.45	1.1	0.9	0.8	0.7
D Maximum flange depth	1.6	1.2	1.0	0.8	0.7
N Minimum tyre width	3.9	3.05	2.5	2.25	1.95

Notes:

1. There is no limitation on the maximum tyre width.
2. The minimum flange width is limited by practical considerations only.
3. The flange front angle should be between 30 and 45 degrees with respect to the vertical.
4. There should be a transition portion at the root of the flange, this being a radius matching the profile of the rail.
5. The nose of the flange should be rounded so as to form a smooth profile.
6. The wheel tread should be tapered at an angle of 3 degrees with respect to the horizontal.

Trackwork.

<u>Recommended Dimensions.</u> (millimeters)	32mm gauge	22.5mm gauge	16.5mm gauge	12mm gauge	9mm gauge
G Track gauge	32.0	22.5	16.5	12.0	9.0
F1 and F 2 Flangeways	2.0	1.5	1.25	1.1	0.95

Critical Dimensions. (millimeters)

Permissible variations on the recommended dimensions are subject to the following critical limits.

G Maximum track gauge	32.6	22.95	16.8	12.2	9.15
C Minimum track gauge	31.9	22.4	16.4	11.9	8.9
CN Minimum check rail - frog nose	29.95	20.9	15.2	10.85	8.0
C Maximum check rail - wing rail	28.1	19.5	14.1	9.9	7.2
F1 Maximum crossing flangeway	2.05	1.6	1.3	1.15	1.0
F1 & F2 Minimum flangeways	1.85	1.4	1.1	0.95	0.8